Colour Television **Chassis**

LC4.2E

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Service
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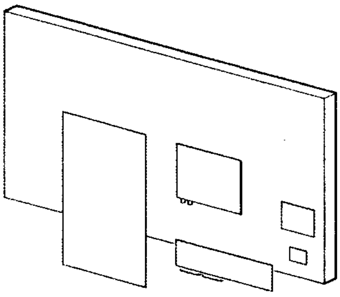
Service



ServiceManual

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Published by BB 0466 Service PaCE Printed in the Netherlands Subject to modification EN 3122 785 14491

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1. Technical Specifications, Connections, and Chassis Overview

Index of this chapter:
1. Technical Specifications
2. Connections
3. Chassis Overview

Note: Figures below can deviate slightly from the actual situation, due to the different set executions.

1.1 Technical Specifications

1.1.1 Vision

Display type	: LCD, S-IPS
	: 16:9
Screen size	: 17 inch (44 cm)
	: 23 inch (59 cm)
	: 26 inch (66 cm)
Resolution (HxV)	: 1280(*3)x768 pixels
	: WXGA
Contrast ratio	: 400:1
Light output	: 450 cd/m^2
Viewing angle (HxV)	: 176x176 deg.
Tuning system	: PLL
Colour systems	: PAL B/G, D/K, I
	: SECAM B/G, D/K, L, L1
Video playback	: NTSC 4.43
	: NTSC 3.58
	: NTSC Play Back
	: PAL 60
	: PAL B/G Play Back
	: SECAM Play Back
Channel selections	: 100 presets
	: UVSH
Aerial input	: 75 ohm, IEC-type
Antenna	: 75 ohm, FM
Dimensions (WxHxD) in mm	: 17 inch: 578x375x240
	: 23 inch: 690x433x240
	: 26 inch: 788x504x270

1.1.2 Sound

Sound systems	: FM/FM (5.5-5.74)
	: BI NICAM BG - 2CS BG
	: NICAM B/G (5.5-5.85)
	: NICAM D/K (6.5-5.85) (Hung)
	: NICAM I (6.0-6.52)
	: NICAM L (6.5(AM)-5.85)
Maximum power	: 17 inch: 2 x 3 W_rms
	: 23 inch: 2 x 5 W_rms
	: 26 inch: 2 x 5 W_rms

1.1.3 Miscellaneous

Power supply:	
Mains voltage	: 95 - 240 V_ac
Mains frequency	: 50 / 60 Hz
Ambient conditions:	
- Temperature range	: +5 to +40 deg. C
- Maximum humidity	: 90 % R.H.
Power consumption	
- Normal operation	: 17 inch: 55 W
	: 23 inch: 96 W
	: 26 inch: 110 W
- Standby	: < 3 W

1.2 Connections

1.2.1 Rear Connections

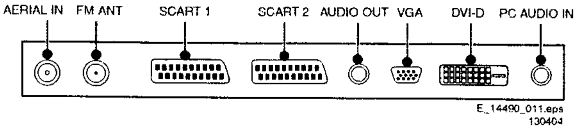

Figure 1-1 Rear connections

Aerial - In

- IEC-type Coax, 75 ohm ⊤

FM Ant

- IEC-type Coax, 75 ohm ⊤

External 1: RGB/YUV - In and CVBS - In/Out

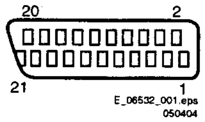

Figure 1-2 SCART connector

1	- Audio - R	0.5 V_rms / 1 kohm	○→
2	- Audio - R	0.5 V_rms / 10 kohm	→○
3	- Audio - L	0.5 V_rms / 1 kohm	○→
4	- Audio - gnd	Ground	⏚
5	- Blue - gnd	Ground	⏚
6	- Audio - L	0.5 V_rms / 10 kohm	→○
7	- Blue/U - in	0.7 V_pp / 75 ohm	→○
8	- CVBS - status	0 - 2 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3	
9	- Green - gnd	Ground	⏚
10	- n.c.		
11	- Green/Y - in	0.7 V_pp / 75 ohm	→○
12	- n.c.		
13	- Red - gnd	Ground	⏚
14	- FBL - gnd	Ground	⏚
15	- Red/V - in	0.7 V_pp / 75 ohm	→○
16	- Status/FBL	0 - 0.4 V: INT 1 - 3 V: EXT / 75 ohm	→○
17	- Video	Ground	⏚
18	- Video	Ground	⏚
19	- CVBS - out	1 V_pp / 75 ohm	○→
20	- CVBS - in	1 V_pp / 75 ohm	→○
21	- Shielding	Ground	⏚

External 2: RGB/YUV - In and CVBS - In/Out

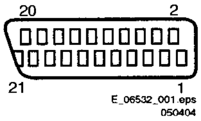

Figure 1-3 SCART connector

1	- Audio - R	0.5 V_rms / 1 kohm	○→
2	- Audio - R	0.5 V_rms / 10 kohm	→○
3	- Audio - L	0.5 V_rms / 1 kohm	○→
4	- Audio - gnd	Ground	⏚
5	- Blue - gnd	Ground	⏚
6	- Audio - L	0.5 V_rms / 10 kohm	→○
7	- n.c.		→○
8	- CVBS - status	0 - 2 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3	
9	- Green - gnd	Ground	⏚
10	- n.c.		
11	- n.c.		→○
12	- n.c.		
13	- Red - gnd	Ground	⏚
14	- FBL - gnd	Ground	⏚
15	- C - in	0.3 V_pp / 75 ohm	→○
16	- n.c.		→○
17	- Video	Ground	⏚
18	- Video	Ground	⏚
19	- CVBS - out	1 V_pp / 75 ohm	○→
20	- CVBS/Y - in	1 V_pp / 75 ohm	→○
21	- Shielding	Ground	⏚

Audio - out

3	- Audio - R	0.5 V_rms / 1 kohm	○→ →○
2	- Audio - L	0.5 V_rms / 1 kohm	○→ →○

VGA

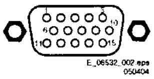

Figure 1-4 VGA Connector

1	- Red	0.7 V_pp / 75 ohm	→○
2	- Green	0.7 V_pp / 75 ohm	→○
3	- Blue	0.7 V_pp / 75 ohm	→○
4	-	Ground	⏚
5	-	Ground	⏚
6	-	Ground	⏚
7	-	Ground	⏚
8	-	Ground	⏚
9	- 5V_DC	+5 V_dc	→○
10	-	Ground	⏚
11	-	Ground	⏚
12	- DDC_SDA		→○○→
13	- H-sync	0 - 5 V	→○
14	- V-sync	0 - 5 V	→○
15	- DDC_SCL		→○

DVI (for 23 and 26 inch models)

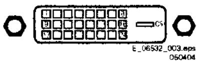

Figure 1-5 DVI connector

1	- RX2-		→○
2	- RX2+		→○
3	- Ground	GND	⏚
4	-	n.c.	
5	-	n.c.	
6	- SCL_DVI		○→
7	- SDA_DVI		→○○→
8	-	n.c.	
9	- RX1-		→○
10	- RX1+		→○
11	- Ground	GND	⏚
12	-	n.c.	
13	-	n.c.	
14	- +5V		
15	- Ground	GND	⏚
16	- + 5V Hot Plug		
17	- RX0-		→○
18	- RX0+		→○
19	- Ground	GND	⏚
20	-	n.c.	
21	-	n.c.	
22	- Ground	GND	⏚
23	- RXC+		→○
24	- RXC-		→○
C5	- Ground	GND	⏚

PC Audio - in

3	- Audio - R	0.5 V_rms / 1 kohm	○→◎
2	- Audio - L	0.5 V_rms / 1 kohm	○→◎

1.2.2 Side connections

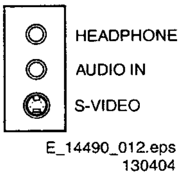

Figure 1-6 Side connections

Hosiden: SVHS - In

1	- Y	Ground	⏚
2	- C	Ground	⏚
3	- Y	1 Vpp / 75 ohm	→○
4	- C	0.3 Vpp / 75 ohm	→○

Mini Jack: Audio - in

2	- Audio - L	0.5 Vrms / 10 kohm	→○◎
3	- Audio - R	0.5 Vrms / 10 kohm	→○◎

Mini Jack: Headphone - Out

- Headphone	32 - 600 ohm / 10 mW	◎ 3.5mm 🎧

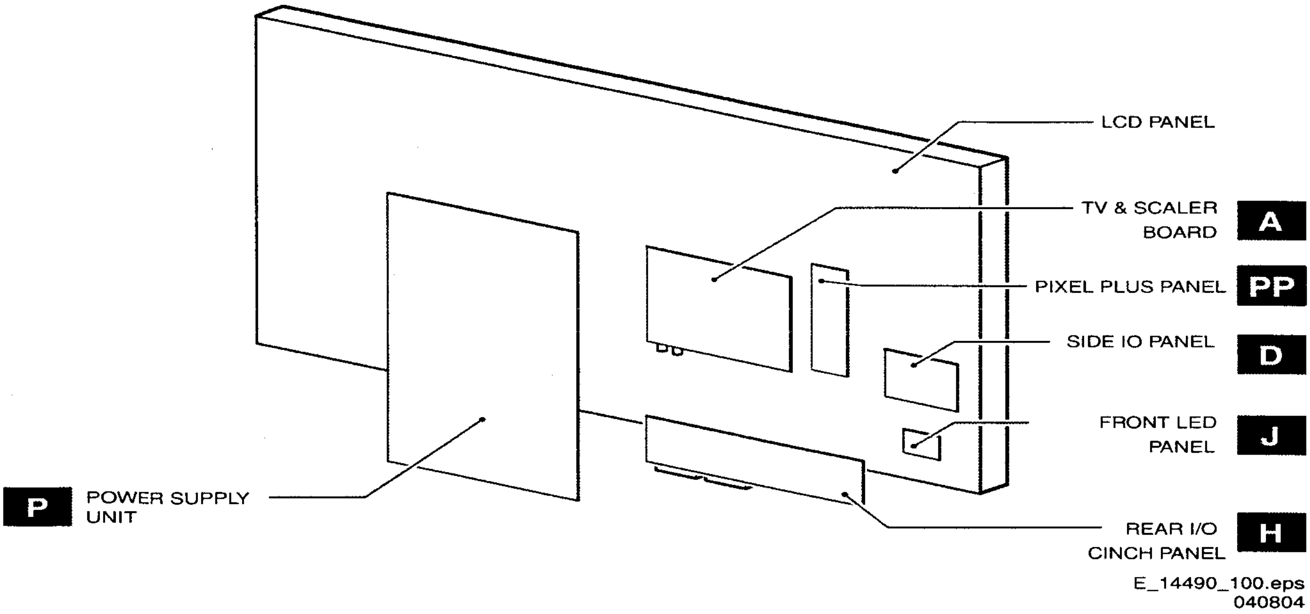
LCD PANEL
TV & SCALER BOARD
A
PIXEL PLUS PANEL
PP
SIDE IO PANEL
D
FRONT LED PANEL
J
REAR I/O CINCH PANEL
H
P
POWER SUPPLY UNIT
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Figure 1-7 Chassis Overview

2. Safety Instructions, Warnings, and Notes

2.1 Safety Instructions

Safety regulations require that **during** a repair:

- Connect the set to the Mains via an isolation transformer (> 800 VA).
- Replace safety components, indicated by the symbol ⚠, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.

Safety regulations require that **after** a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the Mains lead for external damage.
- Check the strain relief of the Mains cord for proper function.
- Check the electrical DC resistance between the Mains plug and the secondary side (only for sets which have a Mains isolated power supply):
  1. Unplug the Mains cord and connect a wire between the two pins of the Mains plug.
  2. Set the Mains switch to the "on" position (keep the Mains cord unplugged!).
  3. Measure the resistance value between the pins of the Mains plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 Mohm and 12 Mohm.
  4. Switch "off" the set, and remove the wire between the two pins of the Mains plug.
- Check the cabinet for defects, to avoid touching of any inner parts by the customer.

2.2 Warnings

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD ⚠). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential. Available ESD protection equipment:
  - Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
  - Wristband tester 4822 344 13999.
- Be careful during measurements in the high voltage section.
- Never replace modules or other components while the unit is switched "on".
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

2.3 Notes

2.3.1 General

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground (⏚), or hot ground (⏚), depending on the tested area of circuitry. The voltages and waveforms shown in the diagrams are indicative. Measure them in the Service Default Mode (see chapter 5) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz for PAL, or 61.25 MHz for NTSC (channel 3).
- Where necessary, measure the waveforms and voltages with (⫪) and without (⫪̸) aerial signal. Measure the voltages in the power supply section both in normal operation (⏀) and in standby (⏻). These values are indicated by means of the appropriate symbols.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.
- Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic" and the "double-D symbol", are trademarks of Dolby Laboratories.

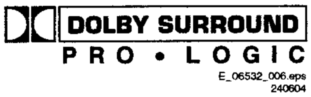

Figure 2-1 Dolby PL Symbol

2.3.2 Schematic Notes

- All resistor values are in ohms and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 kohm).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 ohm).
- All capacitor values are given in micro-farads ($\mu = x10^{-6}$), nano-farads ($n = x10^{-9}$), or pico-farads ($p = x10^{-12}$).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An "asterisk" (*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed in the Electrical Replacement Parts List. Therefore, always check this list when there is any doubt.

2.3.3 Rework on BGA (Ball Grid Array) ICs

General

Although (LF)BGA assembly yields are very high, there may still be a requirement for component rework. By rework, we mean the process of removing the component from the PWB and replacing it with a new component. If an (LF)BGA is removed from a PWB, the solder balls of the component are deformed drastically so the removed (LF)BGA has to be discarded.

Device Removal

As is the case with any component that, it is essential when removing an (LF)BGA, the board, tracks, solder lands, or surrounding components are not damaged. To remove an (LF)BGA, the board must be uniformly heated to a temperature close to the reflow soldering temperature. A uniform temperature reduces the chance of warping the PWB.
To do this, we recommend that the board is heated until it is certain that all the joints are molten. Then carefully pull the component off the board with a vacuum nozzle. For the appropriate temperature profiles, see the IC data sheet.

Area Preparation

When the component has been removed, the vacant IC area must be cleaned before replacing the (LF)BGA.
Removing an IC often leaves varying amounts of solder on the mounting lands. This excessive solder can be removed with either a solder sucker or solder wick. The remaining flux can be removed with a brush and cleaning agent.
After the board is properly cleaned and inspected, apply flux on the solder lands and on the connection balls of the (LF)BGA.
Note: Do not apply solder paste, as this has shown to result in problems during re-soldering.

Device Replacement

The last step in the repair process is to solder the new component on the board. Ideally, the (LF)BGA should be aligned under a microscope or magnifying glass. If this is not possible, try to align the (LF)BGA with any board markers. To reflow the solder, apply a temperature profile according to the *IC data sheet*. So as not to damage neighbouring components, it may be necessary to reduce some temperatures and times.

More Information

For more information on how to handle BGA devices, visit this URL: http://www.atyourservice.ce.philips.com (needs subscription). After login, select "Magazine", then go to "Workshop Information". Here you will find Information on how to deal with BGA-ICs.

2.3.4 Lead Free Solder

Some PWBs in this chassis are "lead-free **prepared**". This is indicated on the PWB by the PHILIPS lead-free logo (either by a service-printing or by a sticker). It does not mean that lead-free solder is actually used!

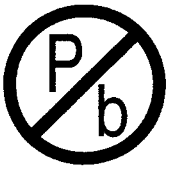

Figure 2-2 Lead-free logo

2.3.5 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages**. While some may not be dangerous in themselves, they can cause unexpected reactions - reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.

3. Directions for Use

You can download this information from the following website:
http://www.philips.com/support

4. Mechanical Instructions

Index of this chapter:

1. Service Position
2. Rear Cover Removal
3. Power Supply Unit Removal
4. TV & Scaler Board Removal
5. I/O Panel Removal
6. Side I/O & Keyboard Panel and Front LED Panel Removal
7. Pixel Plus Panel Removal
8. Exchanging the LCD Panel
9. Re-assembly

Note: Figures below can deviate from the actual situation, due to different set executions.

Note: To diagnose the set with ComPair it is **not** needed to open the set entirely.

1. *Manually unlock and remove the cover cap (1).* See figure "TV set rear view".
2. Break away the protective plate (2) at the I/O panel bracket to get access to the needed plugs. See figure "Protective plate".

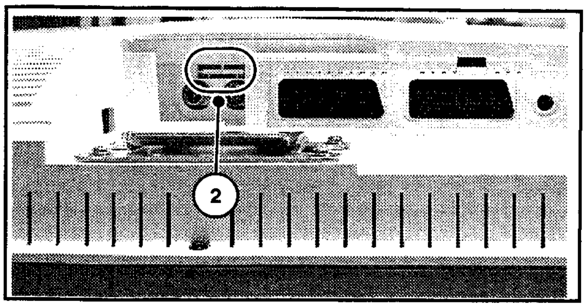

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Figure 4-1 Protective plate

4.1 Service Position

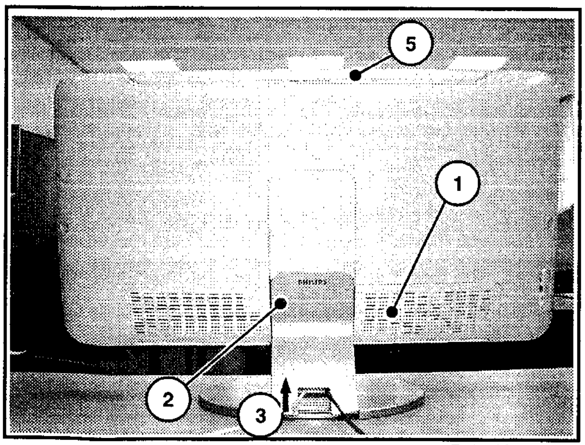

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Figure 4-2 TV set rear view

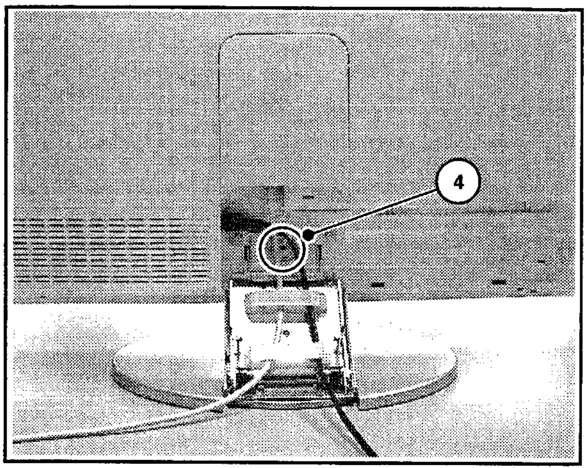

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Figure 4-3 TV stand removal

1. Carefully pull upwards the cover plate (2) (from it's left side) to unlock it (3) and remove the plate from the stand.
2. Unplug the AC power and the antenna cables.
3. Be sure to remove the coin slotted mounting screw (4) from the stand.
4. Carefully lift the TV from the swivel base (it uses a vertical sliding mechanism).
5. Place the TV upside down on a tabletop (use a protection sheet or foam bars). Take care, that this is flat and free from obstacles like screws, to prevent damaging the fragile LCD screen.

4.1.1 Foam Bars

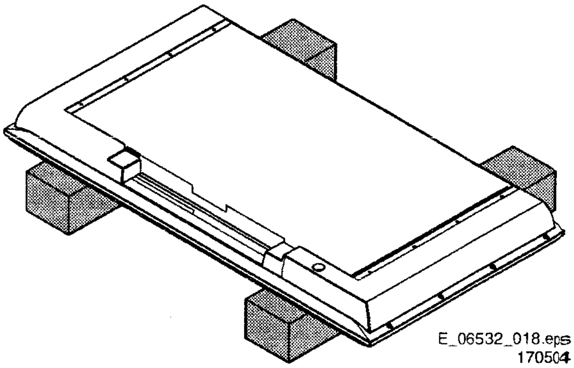

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Figure 4-4 Foam bars

The foam bars (order code 3122 785 90580) can be used for all types and sizes of Flat TVs. By laying the plasma or LCD TV flat on the (ESD protective) foam bars, a stable situation is created to perform measurements and alignments. By placing a mirror under the TV, you can easily monitor the screen.

4.2 Rear Cover Removal

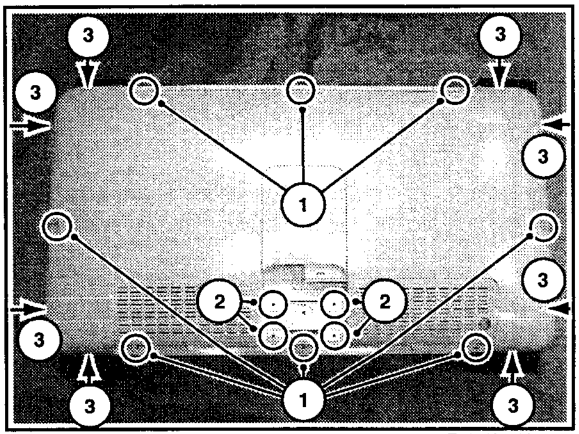

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Figure 4-5 Rear cover removal

1. Manually unlock and remove the top cover cap (5). See Figure: "TV set rear view".
2. Make sure all power-, audio-, video- and coax- cables are unplugged.
3. Remove all Torx screws (1) around the edges of the rear cover.
4. Remove the four silver coloured Torx screws (2) around the stand holder. See figure "Rear cover removal".
5. Carefully use a flat screwdriver to release the clamps (3). See figure "Rear cover removal".
6. Remove the rear cover and store it in a safe place.

Note: avoid holding the button-area during removal (it can be easily damaged).

4.3 Power Supply Unit Removal

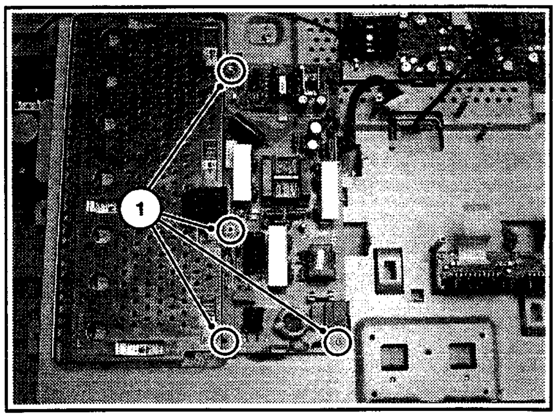

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Figure 4-6 Power supply unit

1. Disconnect all cables from the Power supply unit.
2. Remove all mounting screws (1) from the Power supply unit.
3. Take out the Power supply unit.

4.4 TV & Scaler Board Removal

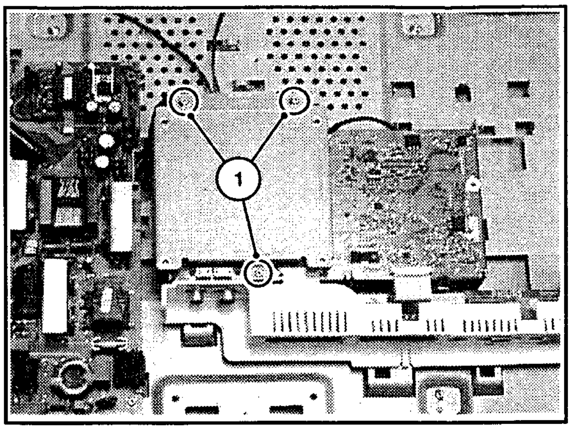

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Figure 4-7 : TV & Scaler board shield removal

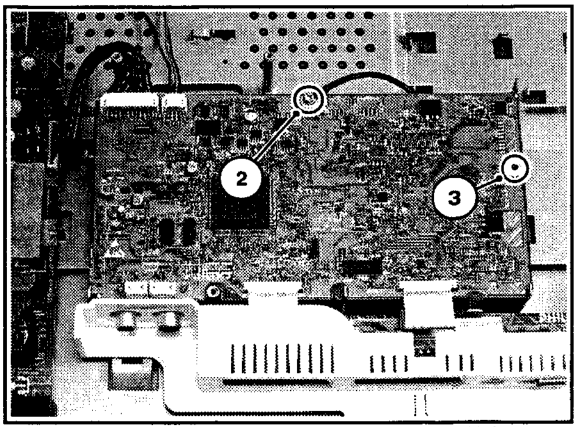

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Figure 4-8 : TV & Scaler board removal

1. Disconnect all cables from the TV & Scaler board.
2. Remove all shield mounting screws (1) and remove the shield.
3. Remove the screw from the grounding cable (2).
4. Remove the mounting screw (3) and remove the board.

4.5 I/O Panel Removal

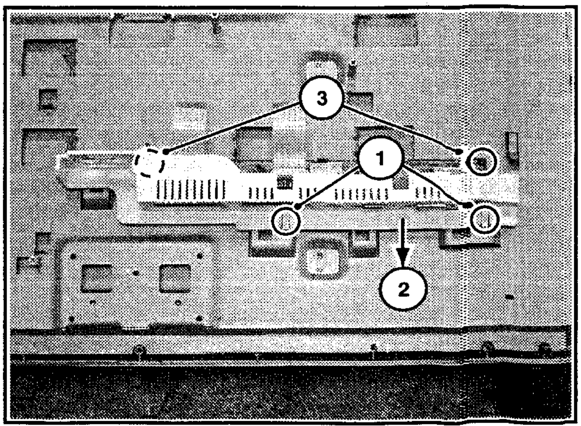

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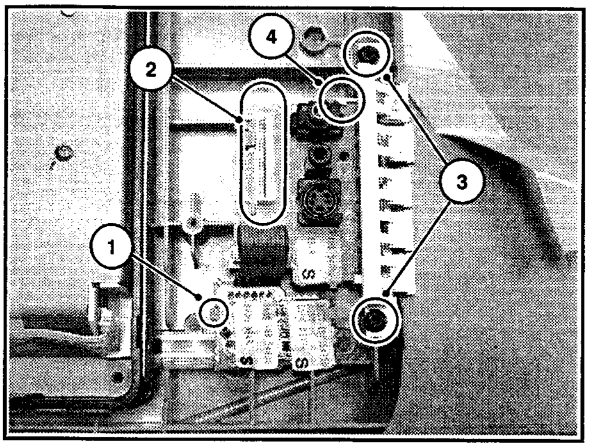
Figure 4-9 I/O panel removal

1. Release the two clamps (1) at the I/O panel bracket. Carefully pull the bracket in the direction (2), as shown at the figure "I/O panel removal", and remove it.
2. Disconnect all cables from the I/O panel.
3. Remove all mounting screws from the I/O panel (3).
4. Take out the I/O panel.

4.6 Side I/O & Keyboard Panel and Front LED Panel Removal

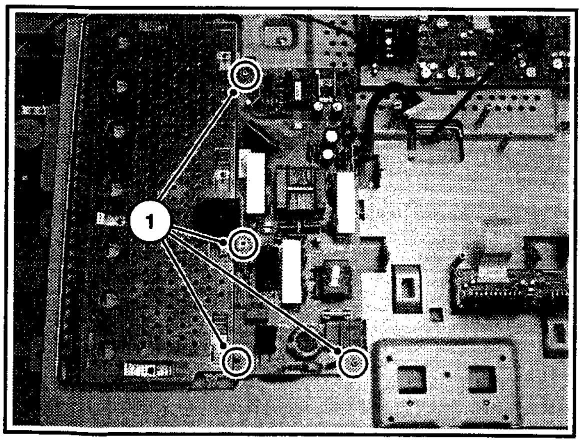


E_14490_009.eps
130404

Figure 4-10 Side I/O & Keyboard panel and Front LED panel removal

1. Release the clamp (1) and take out the Front LED panel.
2. Disconnect the cable (2) from the Side I/O & Keyboard panel.
3. Remove all mounting screws (3) from the Side I/O & Keyboard panel bracket.
4. Unlock this unit by shifting it to the outside direction of the monitor.
5. Release the clamp (4) and take out the Side I/O & Keyboard panel from the bracket.

4.7 Pixel Plus Panel Removal

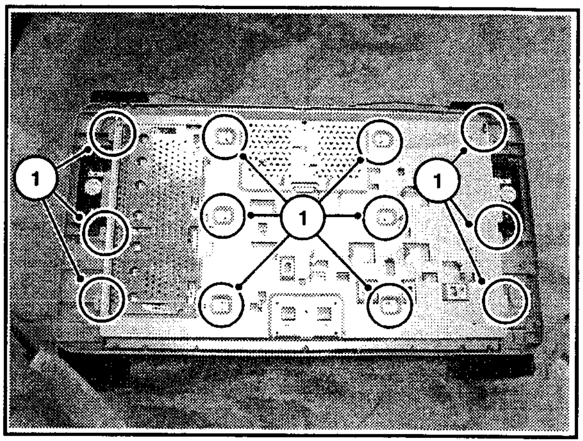


E_14520_005.eps
100204

Figure 4-11 Pixel Plus panel removal

1. Disconnect all cables from the Pixel Plus panel.
2. Remove all mounting screws from the Pixel Plus panel.
3. Take out the Pixel Plus panel.

4.8 Exchanging the LCD Panel



E_14490_010.eps
130404

Figure 4-12 Exchanging the LCD panel

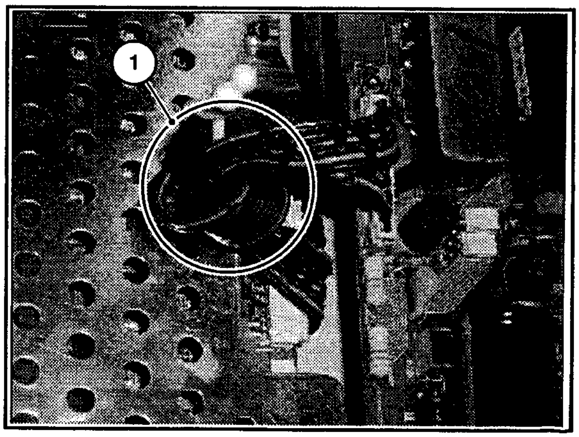
1. Disconnect all cables from the LCD Panel.
2. Remove all mounting screws (1) from the metal cover.
3. Lift and take off the metal cover.
4. Now you can exchange the LCD panel.

4.9 Re-Assembly

To re-assemble the whole set, do all processes in reverse order.

Notes:

- Do **not** forget to replace the ground cable of the TV & Scaler board, while mounting the screw at the board topside. See figure "TV & Scaler board removal".
- Make sure the ferrite ring (1) is properly tightened to the clip (this is valid only for 26 inch sets).



E_14490_055.eps
070504

Figure 4-13 Ferrite ring

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

1. Test Points
2. Service Modes
3. Problems and Solving Tips (related to CSM)
4. ComPair
5. Error Codes
6. The Blinking LED Procedure
7. Fault Finding and Repair Tips
8. Power Supply

5.1 Test Points

This chassis is equipped with test points in the service printing. In the schematics test points are identified with a rectangle box around Fxxx or Ixxx. These test points are specifically mentioned in the service manual as "half moons" with a dot in the centre.
Perform measurements under the following conditions:

- Television set in Service Default Alignment Mode.
- Video input: Colour bar signal.
- Audio input: 3 kHz left channel, 1 kHz right channel.

5.2 Service Modes

Service Default mode (SDM) and Service Alignment Mode (SAM) offers several features for the service technician, while the Customer Service Mode (CSM) is used for communication between the call centre and the customer.

This chassis also offers the option of using ComPair, a hardware interface between a computer and the TV chassis. It offers the abilities of structured troubleshooting, error code reading, and software version readout for all chassis. *Minimum requirements for ComPair:* a Pentium processor, a Windows OS, and a CD-ROM drive (see also paragraph "ComPair").

5.2.1 Service Default Mode (SDM)

Purpose

- To create a predefined setting for measurements to be made.
- To override software protections.
- To start the blinking LED procedure.
- To inspect the error buffer.
- To check the life timer.

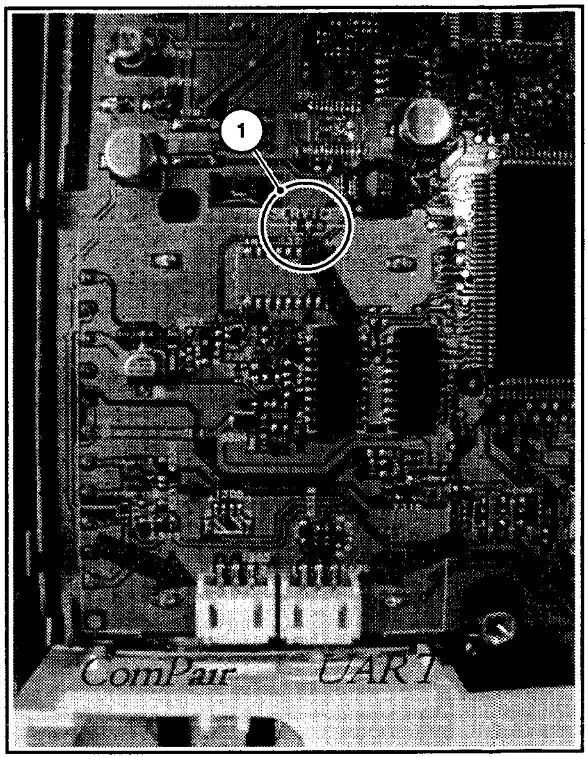
Specifications

- Tuning frequency: 475.25 MHz.
- Colour system: PAL-BG.
- All picture settings at 50% (brightness, colour contrast, hue).
- Bass, treble and balance at 50 %; volume at 25 %.
- All service-unfriendly modes (if present) are disabled. The service unfriendly modes are:
  - Timer / Sleep timer.
  - Child / parental lock.
  - Blue mute.
  - Hotel / hospital mode.
  - Auto shut off (when no "IDENT" video signal is received for 15 minutes).
  - Skipping of non-favourite presets / channels.
  - Auto-storage of personal presets.
  - Auto user menu time-out.
  - Auto Volume Levelling (AVL).

How to enter

To enter SDM, use one of the following methods:

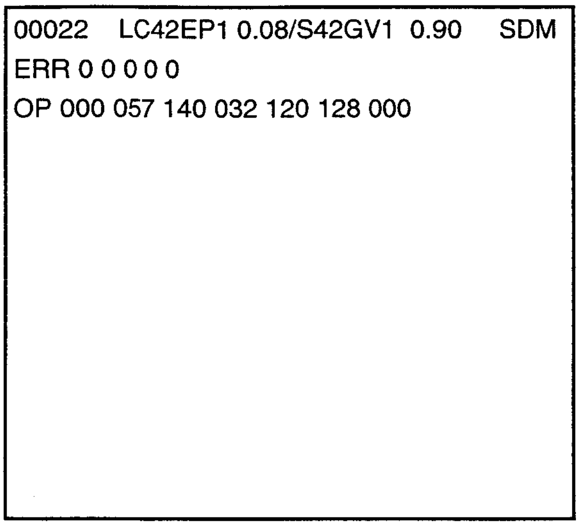
- Press the following key sequence on the remote control transmitter: "062596" directly followed by the MENU button (do not allow the display to time out between entries while keying the sequence).
- Short "Service" jumpers on the TV board during cold start and apply mains (see Figure "Service jumpers"). Then press the mains button (remove the short after start-up). **Caution**: Entering SDM by shorting "Service" jumpers will override the +8V-protection. Do this only for a short period. When doing this, the service-technician must know exactly what he is doing, as it could damage the television set.
- Or via ComPair.



E_14490_056.eps
070504

Figure 5-1 E Service jumpers

After entering SDM, the following screen is visible, with SDM in the upper right corner of the screen to indicate that the television is in Service Default Alignment Mode.



```
00022   LC42EP1 0.08/S42GV1  0.90    SDM
ERR 0 0 0 0 0
OP 000 057 140 032 120 128 000
```

E_14490_051.eps
220404

Figure 5-2 SDM menu

How to navigate

Use one of the following methods:

- When you press the MENU button on the remote control, the set will switch on the normal user menu in the SDM mode.
- On the TV, press and hold the VOLUME DOWN and press the CHANNEL DOWN for a few seconds, to switch from SDM to SAM and reverse.

How to exit

Switch the set to STANDBY by pressing the mains button on the remote control transmitter or the television set.
If you turn the television set off by removing the mains (i.e., unplugging the television) without using the mains button, the television set will remain in SDM when mains is re-applied, and the error buffer is not cleared.

5.2.2 Service Alignment Mode (SAM)

Purpose

- To change option settings.
- To display / clear the error code buffer.
- To perform alignments.

Specifications

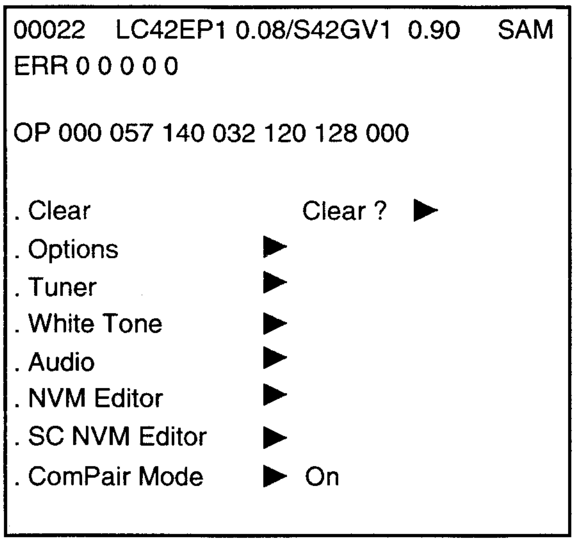
- Operation hours counter (maximum five digits displayed).
- Software version, Error codes, and Option settings display.
- Error buffer clearing.
- Option settings.
- AKB switching.
- Software alignments (Tuner, White Tone, Geometry & Audio).
- NVM Editor.
- ComPair Mode switching.

How to enter

To enter SAM, use one of the following methods:

- Press the following key sequence on the remote control transmitter: "062596" directly followed by the OSD/ STATUS button (do not allow the display to time out between entries while keying the sequence).
- Or via ComPair.

After entering SAM, the following screen is visible, with SAM in the upper right corner of the screen to indicate that the television is in Service Alignment Mode.



```
00022   LC42EP1 0.08/S42GV1  0.90    SAM
ERR 0 0 0 0 0

OP 000 057 140 032 120 128 000

. Clear                   Clear ?  ▶
. Options            ▶
. Tuner              ▶
. White Tone         ▶
. Audio              ▶
. NVM Editor         ▶
. SC NVM Editor      ▶
. ComPair Mode       ▶  On
```

E_14490_052eps
220404

Figure 5-3 SAM menu

Menu explanation

1. **LLLLL.** This represents the run timer. The run timer counts normal operation hours, but does not count standby hours.
2. **AAAABCD-X.Y/ EEEEEE F.GG.** This is the software identification of the main microprocessor followed by the software identification for the scaler IC:
   - **A**= the project name (LC42).
   - **B**= the region: E= Europe, A= Asia Pacific, U= NAFTA, L= LATAM.
   - **C**= the software diversity:
     - **Europe:** T= 1 page TXT, F= Full TXT, V= Voice control.
     - **LATAM and NAFTA:** N= Stereo non-dBx, S= Stereo dBx.
     - **Asian Pacific:** T= TXT, N= non-TXT, C= NTSC.
     - **ALL regions:** M= mono, D= DVD, Q= Mk2.
   - **D**= the language cluster number.
   - **X**= the main software version number (updated with a major change that is incompatible with previous versions).
   - **Y**= the sub software version number (updated with a minor change that is compatible with previous versions).
   - **EEEEEE**= the scaler sw cluster
   - **F**= the main sw version no.
   - **GG**= the sub-version no.
3. **SAM.** Indication of the Service Alignment Mode.
4. **Error Buffer.** Shows all errors detected since the last time the buffer was erased. Five errors possible.
5. **Option Bytes.** Used to set the option bytes. See "Options" in the Alignments section for a detailed description. Seven codes are possible.
6. **Clear.** Erases the contents of the error buffer. Select the CLEAR menu item and press the MENU RIGHT key. The content of the error buffer is cleared.
7. **Options.** Used to set the option bits. See "Options" in the Alignments section for a detailed description.
8. **Tuner.** Used to align the tuner. See "Tuner" in the Alignments section for a detailed description.
9. **White Tone.** Used to align the white tone. See "White Tone" in the Alignments section for a detailed description.
10. **Audio.** No audio alignment is necessary for this television set.

11. **NVM Editor.** Can be used to change the NVM data in the television set. See table “NVM data” further on.
12. **SC NVM Editor.** Can be used to edit Scaler NVM.
13. **ComPaIr.** Can be used to switch on the television to In System Programming (ISP) mode, for software uploading via ComPair.
    Caution: When this mode is selected without ComPair connected, the TV will be blocked. Remove the AC power to reset the TV.

How to navigate

- In SAM, select menu items with the MENU UP/DOWN keys on the remote control transmitter. The selected item will be highlighted. When not all menu items fit on the screen, use the MENU UP/DOWN keys to display the next / previous menu items.
- With the MENU LEFT/RIGHT keys, it is possible to:
  – Activate the selected menu item.
  – Change the value of the selected menu item.
  – Activate the selected submenu.
- In SAM, when you press the MENU button twice, the set will switch to the normal user menus (with the SAM mode still active in the background). To return to the SAM menu press the MENU or STATUS/EXIT button.
- When you press the MENU key in while in a submenu, you will return to the previous menu.

How to store SAM settings

To store the settings changed in SAM mode, leave the top level SAM menu by using the POWER button on the remote control transmitter or the television set.

How to exit

Switch the set to STANDBY by pressing the mains button on the remote control transmitter or the television set.
If you turn the television set “off” by removing the mains (i.e., unplugging the television) without using the mains button, the television set will remain in SAM when mains is re-applied, and the error buffer is not cleared.

5.2.3 Customer Service Mode (CSM)

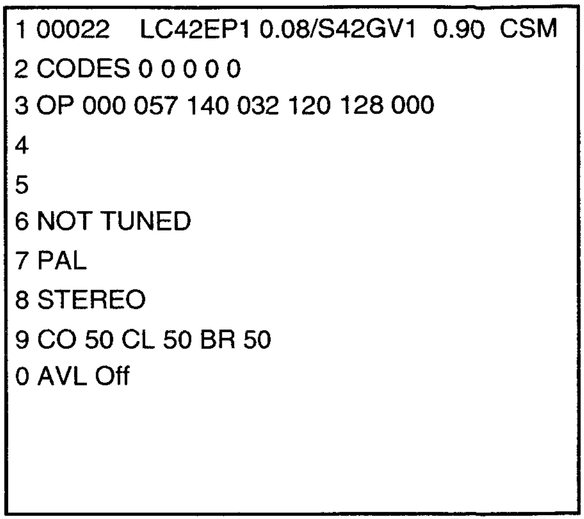
Purpose

The Customer Service Mode shows error codes and information on the TV’s operation settings. The call centre can instruct the customer (by telephone) to enter CSM in order to identify the status of the set. This helps the call centre to diagnose problems and failures in the TV set before making a service call.
The CSM is a read-only mode; therefore, modifications are not possible in this mode.

How to enter

To enter CSM, press the following key sequence on the remote control transmitter: “123654” (do not allow the display to time out between entries while keying the sequence).

Upon entering the Customer Service Mode, the following screen will appear:



```
1 00022   LC42EP1 0.08/S42GV1  0.90  CSM
2 CODES 0 0 0 0 0
3 OP 000 057 140 032 120 128 000
4
5
6 NOT TUNED
7 PAL
8 STEREO
9 CO 50 CL 50 BR 50
0 AVL Off
```

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230404

Figure 5-4 CSM menu

Menu explanation

1. Indication of the decimal value of the operation hours counter, Software identification of the main microprocessor (see "Service Default or Alignment Mode" for an explanation), and the service mode (CSM= Customer Service Mode).
2. Displays the last five errors detected in the error code buffer.
3. Displays the option bytes.
4. Displays the type number version of the set.
5. Reserved item for P3C call centres (AKBS stands for Advanced Knowledge Base System).
6. Indicates the television is receiving an "IDENT" signal on the selected source. If no "IDENT" signal is detected, the display will read "NOT TUNED"
7. Displays the detected Colour system (e.g. PAL/NTSC).
8. Displays the detected Audio (e.g. stereo/mono).
9. Displays the picture setting information.
10. Displays the sound setting information.

How to exit

To exit CSM, use one of the following methods:

- Press the MENU, STATUS/EXIT, or POWER button on the remote control transmitter.
- Press the POWER button on the television set.

5.3 Problems and Solving Tips Related to CSM

5.3.1 Picture Problems

Note: The problems described below are all related to the TV settings. The procedures used to change the value (or status) of the different settings are described.

Picture too dark or too bright

If:

- The picture improves when you press the AUTO PICTURE button on the remote control transmitter, or
- The picture improves when you enter the Customer Service Mode,

Then:

1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the MENU UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the MENU LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the MENU UP/DOWN keys (if necessary) to select BRIGHTNESS.
6. Press the MENU LEFT/RIGHT keys to increase or decrease the BRIGHTNESS value.
7. Use the MENU UP/DOWN keys to select PICTURE.
8. Press the MENU LEFT/RIGHT keys to increase or decrease the PICTURE value.
9. Press the MENU button on the remote control transmitter twice to exit the user menu.
10. The new PERSONAL preference values are automatically stored.

White line around picture elements and text

If:

The picture improves after you have pressed the AUTO PICTURE button on the remote control transmitter,

Then:

1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the MENU UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the MENU LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the MENU UP/DOWN keys to select SHARPNESS.
6. Press the MENU LEFT key to decrease the SHARPNESS value.
7. Press the MENU button on the remote control transmitter twice to exit the user menu.
8. The new PERSONAL preference value is automatically stored.

Snowy picture

Check CSM line 6. If this line reads “Not Tuned”, check the following:

- Antenna not connected. Connect the antenna.
- No antenna signal or bad antenna signal. Connect a proper antenna signal.
- The tuner is faulty (in this case line 2, the Error Buffer line, will contain error number 10). Check the tuner and replace/repair the tuner if necessary.

Black and white picture

If:

- The picture improves after you have pressed the AUTO PICTURE button on the remote control transmitter,

Then:

1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the MENU UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the MENU LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the MENU UP/DOWN keys to select COLOUR.
6. Press the MENU RIGHT key to increase the COLOUR value.
7. Press the MENU button on the remote control transmitter twice to exit the user menu.
8. The new PERSONAL preference value is automatically stored.

Menu text not sharp enough

If:

- The picture improves after you have pressed the AUTO PICTURE button on the remote control transmitter,

Then:

1. Press the AUTO PICTURE button on the remote control transmitter repeatedly (if necessary) to choose PERSONAL picture mode.
2. Press the MENU button on the remote control transmitter. This brings up the normal user menu.
3. In the normal user menu, use the MENU UP/DOWN keys to highlight the PICTURE sub menu.
4. Press the MENU LEFT/RIGHT keys to enter the PICTURE sub menu.
5. Use the MENU UP/DOWN keys to select PICTURE.
6. Press the MENU LEFT key to decrease the PICTURE value.
7. Press the MENU button on the remote control transmitter twice to exit the user menu.
8. The new PERSONAL preference value is automatically stored.

5.4 ComPair

5.4.1 Introduction

ComPair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. ComPair is a further development on the European DST (service remote control), which allows faster and more accurate diagnostics. ComPair has three big advantages:

ComPair helps you to quickly get an understanding on how to repair the chassis in a short time by guiding you systematically through the repair procedures.

ComPair allows very detailed diagnostics (on I2C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I2C commands yourself because ComPair takes care of this.

ComPair speeds up the repair time since it can automatically communicate with the chassis (when the microprocessor is working) and all repair information is directly available. When ComPair is installed together with the SearchMan electronic manual of the defective chassis, schematics and PWBs are only a mouse click away.

5.4.2 Specifications

ComPair consists of a Windows based faultfinding program and an interface box between PC and the (defective) product. The ComPair interface box is connected to the PC via a serial or RS232 cable.

In this chassis, the ComPair interface box and the TV communicate via a bi-directional service cable via the service connector.

The ComPair faultfinding program is able to determine the problem of the defective television. ComPair can gather diagnostic information in two ways:

- **Automatic** (by communication with the television): ComPair can automatically read out the contents of the entire error buffer. Diagnosis is done on I2C level. ComPair can access the I2C bus of the television. ComPair can send and receive I2C commands to the micro controller of the television. In this way, it is possible for ComPair to communicate (read and write) to devices on the I2C busses of the TV-set.

- **Manually** (by asking questions to you): Automatic diagnosis is only possible if the micro controller of the television is working correctly and only to a certain extend. When this is not the case, ComPair will guide you through the faultfinding tree by asking you questions (e.g. *Does the screen give a picture? Click on the correct answer: YES / NO*) and showing you examples (e.g. *Measure test-point I7 and click on the correct waveform you see on the oscilloscope*). You can answer by clicking on a link (e.g. text or a waveform picture) that will bring you to the next step in the faultfinding process.

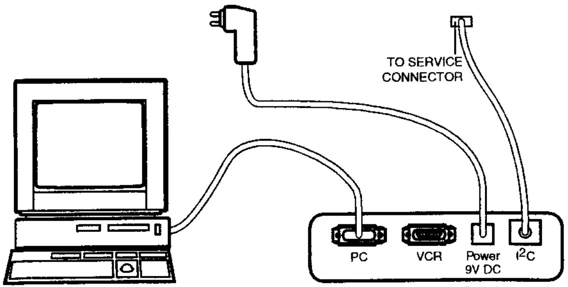
By a combination of automatic diagnostics and an interactive question / answer procedure, ComPair will enable you to find most problems in a fast and effective way.

Beside fault finding, ComPair provides some **additional features** like:

- Up- or downloading of pre-sets.
- Managing of pre-set lists.
- If both ComPair and SearchMan (Electronic Service Manual) are installed, all the schematics and the PWBs of the set are available by clicking on the appropriate hyperlink. **Example**: *Measure the DC-voltage on capacitor C2568 (Schematic/Panel) at the Mono-carrier.*
  - Click on the 'Panel' hyperlink to automatically show the PWB with a highlighted capacitor C2568.
  - Click on the 'Schematic' hyperlink to automatically show the position of the highlighted capacitor.

5.4.3 How To Connect

1. First, install the ComPair Browser software (see the Quick Reference Card for installation instructions).
2. Connect the RS232 interface cable between a free serial (COM) port of your PC and the PC connector (marked with 'PC') of the ComPair interface.
3. Connect the mains adapter to the supply connector (marked with 'POWER 9V DC') of the ComPair interface.
4. Switch the ComPair interface “off”.
5. Switch the television set “off” with the mains switch.
6. Connect the ComPair interface cable with the connector on the rear side of the ComPair interface (marked with 'I2C') and the additional ComPair interface cable. Connect the other side of the additional ComPair interface cable with the ComPair (or *Service*) connector at the rear side of the TV.
7. Plug the mains adapter in a mains outlet, and switch the interface “on”. The green and red LEDs light up together. The red LED extinguishes after approx. 1 second while the green LED remains lit.
8. Start the ComPair program and read the 'Introduction' chapter.



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190204

Figure 5-5 ComPair Interface connection

5.4.4 How To Order

ComPair order codes (EU/AP/LATAM):

- Starter kit ComPair32/SearchMan32 software and ComPair interface (excl. transformer): 3122 785 90450.
- ComPair interface (excluding transformer): 4822 727 21631.
- Starter kit ComPair32 software (registration version): 3122 785 60040.
- Starter kit SearchMan32 software: 3122 785 60050.
- ComPair32 CD (update): 3122 785 60070 (year 2002, 3122 785 60110 (year 2003).
- SearchMan32 CD (update): 3122 785 60080 (year 2002), 3122 785 60120 (year 2003), 3122 785 60130 (year 2004).
- ComPair interface cable: 3122 785 90004.
- ComPair firmware upgrade IC: 3122 785 90510.
- Transformer (non-UK): 4822 727 21632.
- Transformer UK: 4822 727 21633.
- Additional ComPair interface cable: 3139 131 0379.

Note: If you encounter any problems, contact your local support desk.

5.5 Error Codes

The error code buffer contains all errors detected since the last time the buffer was erased. The buffer is written from left to right. When an error occurs that is not yet in the error code buffer, it is displayed at the left side and all other errors shift one position to the right.

5.5.1 How To Read The Error Buffer

You can read the error buffer in 3 ways:

- On screen via the SAM (if you have a picture).
  Examples:
  - ERROR: 0 0 0 0 0 : No errors detected
  - ERROR: 6 0 0 0 0 : Error code 6 is the last and only detected error
  - ERROR: 9 6 0 0 0 : Error code 6 was detected first and error code 9 is the last detected (newest) error
- Via the blinking LED procedure (when you have no picture). See “The Blinking LED Procedure”.
- Via ComPair.

5.5.2 How To Clear The Error Buffer

The error code buffer is cleared in the following cases:

- By using the CLEAR command in the SAM menu:
  - To enter SAM, press the following key sequence on the remote control transmitter: “062596” directly followed by the OSD/STATUS button (do not allow the display to time out between entries while keying the sequence).
  - Make sure the menu item CLEAR is highlighted. Use the MENU UP/DOWN buttons, if necessary.
  - Press the MENU RIGHT button to clear the error buffer. The text on the right side of the “CLEAR” line will change from “CLEAR?” to “CLEARED”
- If the contents of the error buffer have not changed for 50 hours, the error buffer resets automatically.

Note: If you exit SAM by disconnecting the mains from the television set, the error buffer is not reset.

5.5.3 Error Codes

In case of non-intermittent faults, write down the errors present in the error buffer and clear the error buffer before you begin the repair. This ensures that old error codes are no longer present.

If possible, check the entire contents of the error buffer. In some situations, an error code is only the result of another error and not the actual cause of the problem (for example, a fault in the protection detection circuitry can also lead to a protection).

Table 5-1 Error code overview

Error	Device	Error description	Check item	Diagram
0	Not applicable	No Error		
1	Not applicable	-	-	-
2	Not applicable	-	-	-
3	Not applicable	-	-	-
4	GM1501	I2C error while communicating with the Genesis Scaler and/or Flash-ROM is faulty/ empty	7401 7530	A7A11
5	Not applicable	+5v protection	7930	A6
6	I2C bus	General I2C error	7011, 3088, 3096	A2
7	Not applicable	-	-	-
8	M24C32	I2C error while communicating with the Scaler EEPROM	7531	A11
9	M24C16	I2C error while communicating with the EEPROM	7099	A2
10	Tuner	I2C error while communicating with the PLL tuner	1302, 3302, 3303, 3327	A1
11	Not applicable	-	-	-
12	Not applicable	-	-	-
13	Not applicable	-	-	-
14	K4D263238M	Read-write error with the Scaler SDRAM	7501	A10
15	TDA9178T/N1	I2C error while communicating with Histogram	7560	A3
16	EPIC12F	I2C error while communicating with EPLD on Pixel Plus panel	7101	PP1

5.6 The Blinking LED Procedure

Using this procedure, you can make the contents of the error buffer visible via the front LED. This is especially useful when there is no picture.

When the SDM is entered, the front LED will blink the contents of the error-buffer:

- The Led blinks with as many pulses as the error code number, followed by a time period of 1.5 seconds, in which the Led is off.
- Then this sequence starts is repeated.

Any RC5 command terminates this sequence.

Example of error buffer: **12 9 6 0 0**
After entering SDM, the following occurs:

- 1 long blink of 5 seconds to start the sequence,
- 12 short blinks followed by a pause of 1.5 seconds,
- 9 short blinks followed by a pause of 1.5 seconds,
- 6 short blinks followed by a pause of 1.5 seconds,
- 1 long blink of 1.5 seconds to finish the sequence,
- The sequence starts again at 12 short blinks.

5.7 Fault Finding and Repair Tips

Notes:

- It is assumed that the components are mounted correctly with correct values and no bad solder joints.
- Before any fault finding actions, check if the correct options are set.

5.7.1 NVM Editor

In some cases, it can be handy if one directly can change the NVM contents. This can be done with the "NVM Editor" in SAM mode.

5.7.2 Load default NVM values

In case a blank NVM is placed or when the NVM content is corrupted, default values can be downloaded into the NVM. After the default values are downloaded it will be possible to start up and to start aligning the TV set. This is no longer initiated automatically; to initiate the download the following action has to be performed:

1. Switch off the TV set via the mains switch
2. Short circuit the SDM jumpers (keep short circuited)
3. Press P+ or Ch+ on the local keyboard (and keep it pressed)
4. Switch on the TV set via the mains switch
5. When the set has started up the P+/Ch+ button can be released and the short circuit of the SDM jumpers can be removed.
6. The red LED will be on continuously to indicate that the download is initiated (normally when SDM is activated the red LED will start with the Blinking LED sequence).
7. Wait +/- 30 Seconds (time needed to download default values to the NVM)

Result: The set is in SDM, the NVM is loaded with default values and the blinking LED is not activated (The blinking LED is not activated in this case to show that the download has been performed), the LED will be on.

5.7.3 Tuner and IF

No Picture in RF mode

1. Check whether picture is present in AV. If not, go to Video processing troubleshooting section.
2. If present, check that the Option settings are correct.
3. Check that all supply voltages are present.
4. Check if I2C lines are working correctly (3.3V).
5. Manually store a known channel and check if there is IF output at Tuner pin 11.
6. Feed in 105 dBuV at Tuner pin 11 and check whether there is RGB output from Video Processing IC. If yes, Tuner may be defected. Change Tuner.

Sound in picture problem for L' system (rolling horizontal lines)

1. Check whether AGC L' in Sam mode is set to 0.
2. If yes, align the set to correct value.

Required system is not selected correctly

1. Check whether the Service jumper (#4022, 08 05 size) is present. If yes, remove it.
2. Check whether SEL_IF pin is according to what is specified.

5.7.4 Video Processing

No power
1. Check +12 V and 3V3 at position 1910.
2. If no supply, check the connector 1910.
3. If it is correct, check the power supply board.

Power supply is correct but no green light
1. Check the two connectors 1005 and 1601, if they are properly inserted.
2. If they are inserted correctly, check if the 3V3 is present.

No picture display
1. Check the RGB signal.
2. If it is present, check 3-IC7016 (NE555).
3. If it has output, the problem is in SCALER part.
4. Otherwise, check H-out on pin 2 of NE555. If the input signal of pin2 is present, but no output, the IC is failed.

Note:
- If the H-out (pin 67) doesn't have signal or the level is low, check the output of NE555 (pin 3) during start up.
- If the H-out (pin 67) has a signal (or has a signal for a very short time), change IC7016 (NE555).

No TV but PC is present
1. Check if HSYNC and VSYNC are present at PIN 3 of 7071 and 7015.
2. If they are present, check RGB output.
3. If there is no RGB output, the IC TDA120xx can be failed.

Comb Filter not working
1. Check the option bit 5 in SAM.
2. Check NVM setting. Address 1229 is 0000.

5.7.5 Power Supply

Check fuses
This power supply contains three fuses. One is near the mains inlet (marked on the board as 1102) and two other are near the output connectors (marked 1610 and 1660).

1. Check with power supply in off state by means of ohmic measurement.
2. Fuse 1102 may open in case of severe lightning strikes and/or failures in the power supply. Despite the fact, that this fuse is mounted in a fuse holder and the marking text on the board, it is not meant to be field replaceable.
3. Fuses 1610 and 1660 may open in case a severe overload of the 12 V outputs. Replacement of the power supply is needed, but not before the cause of the overload conditions is resolved.

Standby mode
1. Apply a 12 ohm load resistor of sufficient power rating to all outputs (+3 V3, +12 VAL, +12 VL and +24 V). Connect the STBY pin to GND.
2. Over an input voltage range of 90 V_ac to 264 V_ac only the +3 V3 output shall be up and within regulation (±5%). The voltage on the POWER DOWN pin shall be < 0.3 V at an input voltage below 160 V_ac, and 3.3 V ±10% at an input voltage higher than 240 V_ac.

Normal mode:
1. Apply a 12 ohm load resistor of sufficient power rating to all outputs (+3 V3, +12 VAL, +12 VL and +24 V). Connect the STBY pin to the +3 V3 output.
2. Over an input voltage range of 90 V _ac to 264 V_ac all outputs shall be up and within regulation (±5%). The voltage on the POWER DOWN pin shall be 3.3 V ±10% over the entire input voltage range. Additionally, the voltage on the big capacitor mounted flat on the PCB shall be 400 V ±10%

Personal Notes:

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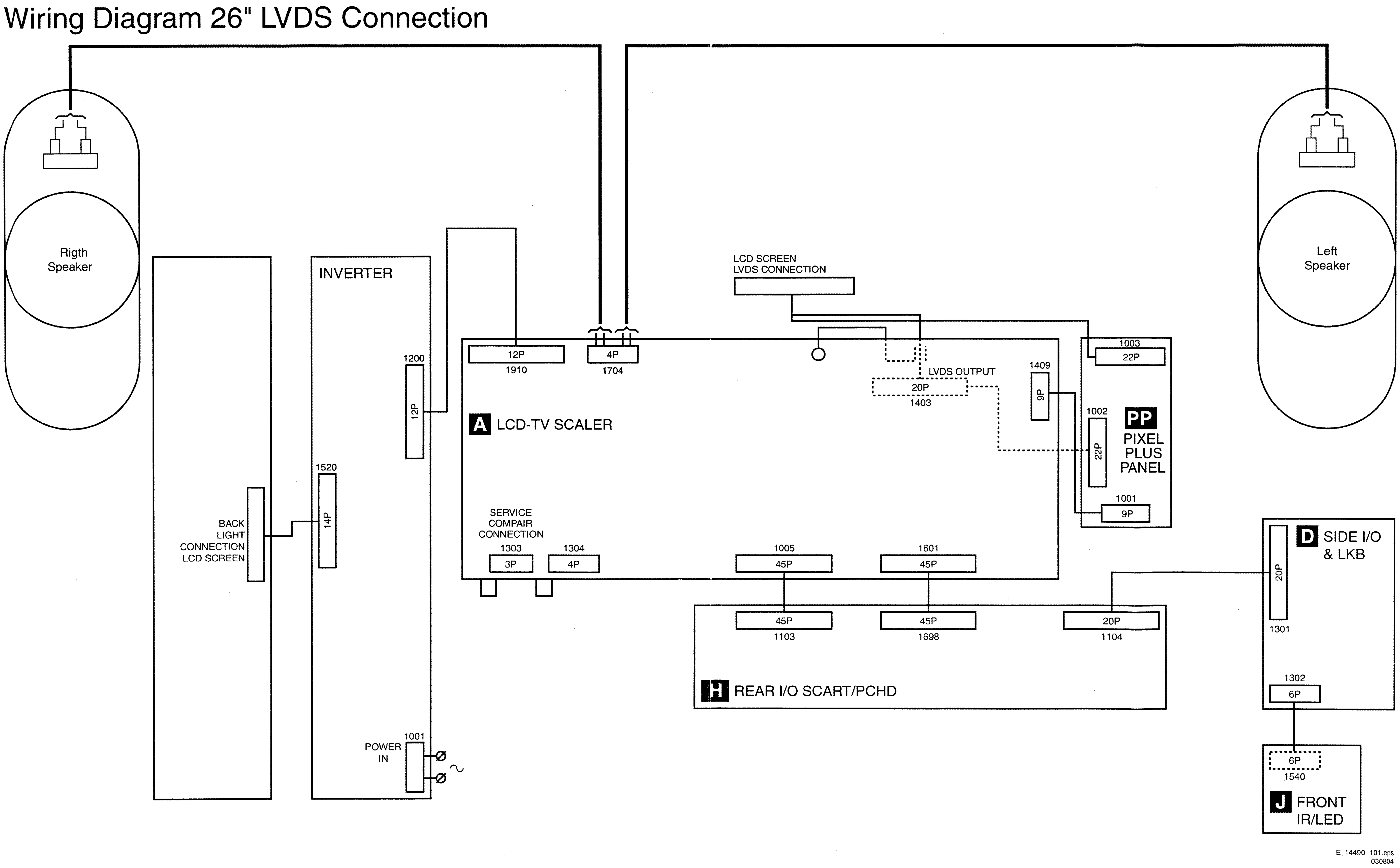
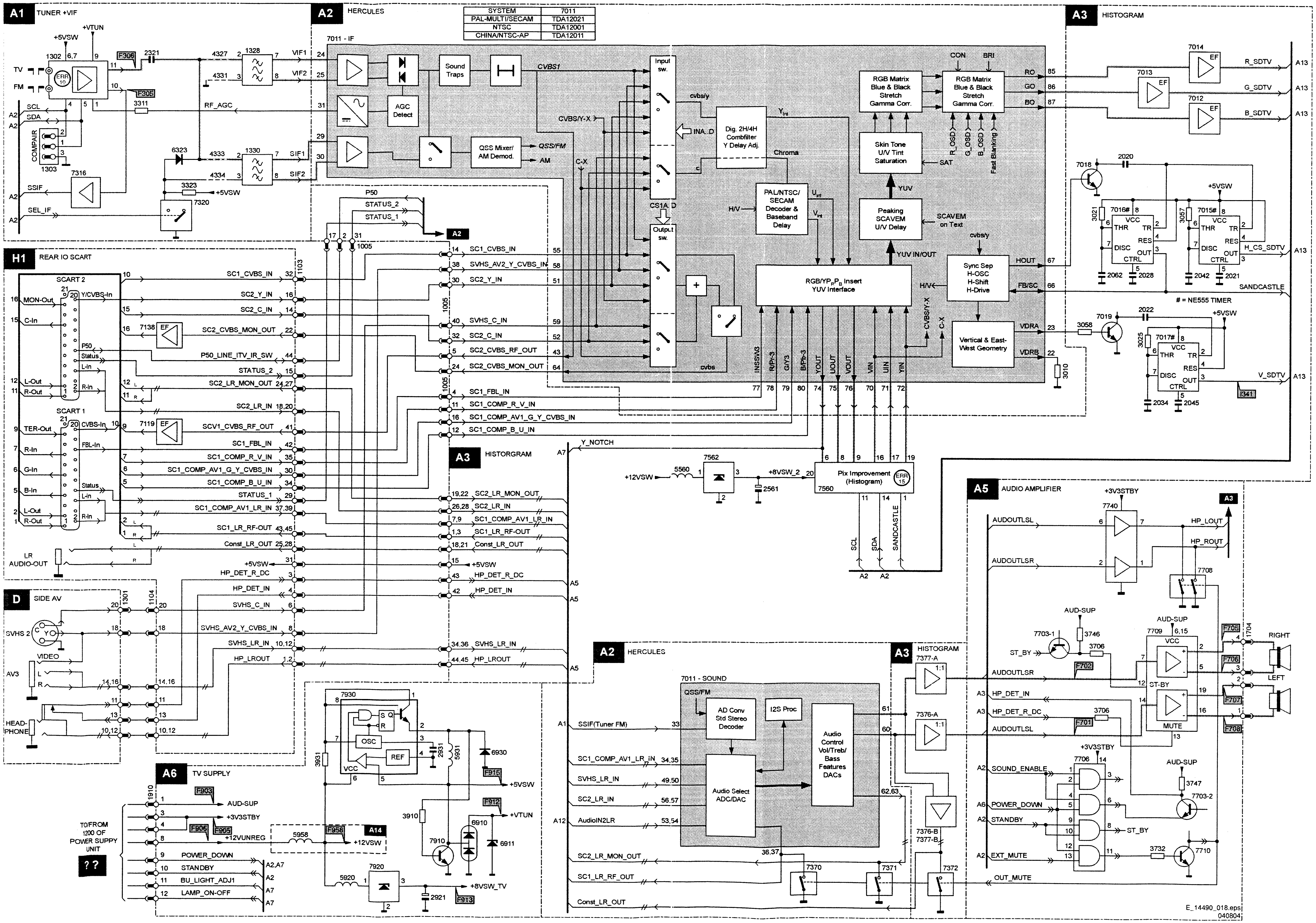
6. Block Diagrams, Testpoint Overviews, and Waveforms

Wiring Diagram


Wiring Diagram 26" LVDS Connection
Rigth Speaker
Left Speaker
INVERTER
1200
12P
1520
14P
BACK LIGHT CONNECTION LCD SCREEN
POWER IN
1001
12P
1910
4P
1704
LCD SCREEN LVDS CONNECTION
LVDS OUTPUT
20P
1403
1409
9P
A LCD-TV SCALER
SERVICE COMPAIR CONNECTION
1303
3P
1304
4P
1005
45P
1601
45P
1003
22P
1002
22P
PP PIXEL PLUS PANEL
1001
9P
45P
1103
45P
1698
20P
1104
H REAR I/O SCART/PCHD
D SIDE I/O & LKB
20P
1301
1302
6P
6P
1540
J FRONT IR/LED
E_14490_101.eps
030804

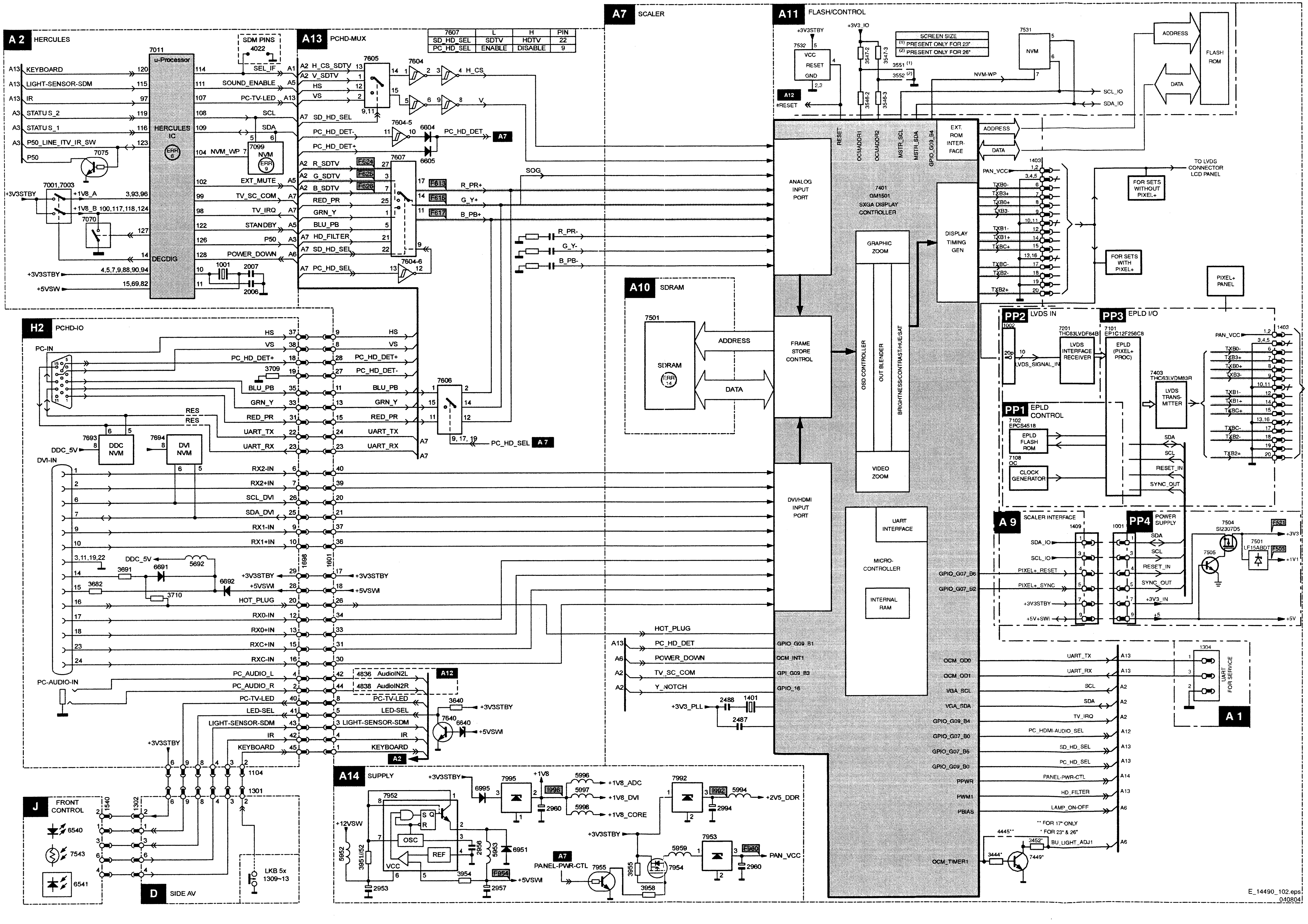
Block Diagram Tuner and IF Video



SYSTEM	7011
PAL-MULTI/SECAM	TDA12021
NTSC	TDA12001
CHINA/NTSC-AP	TDA12011

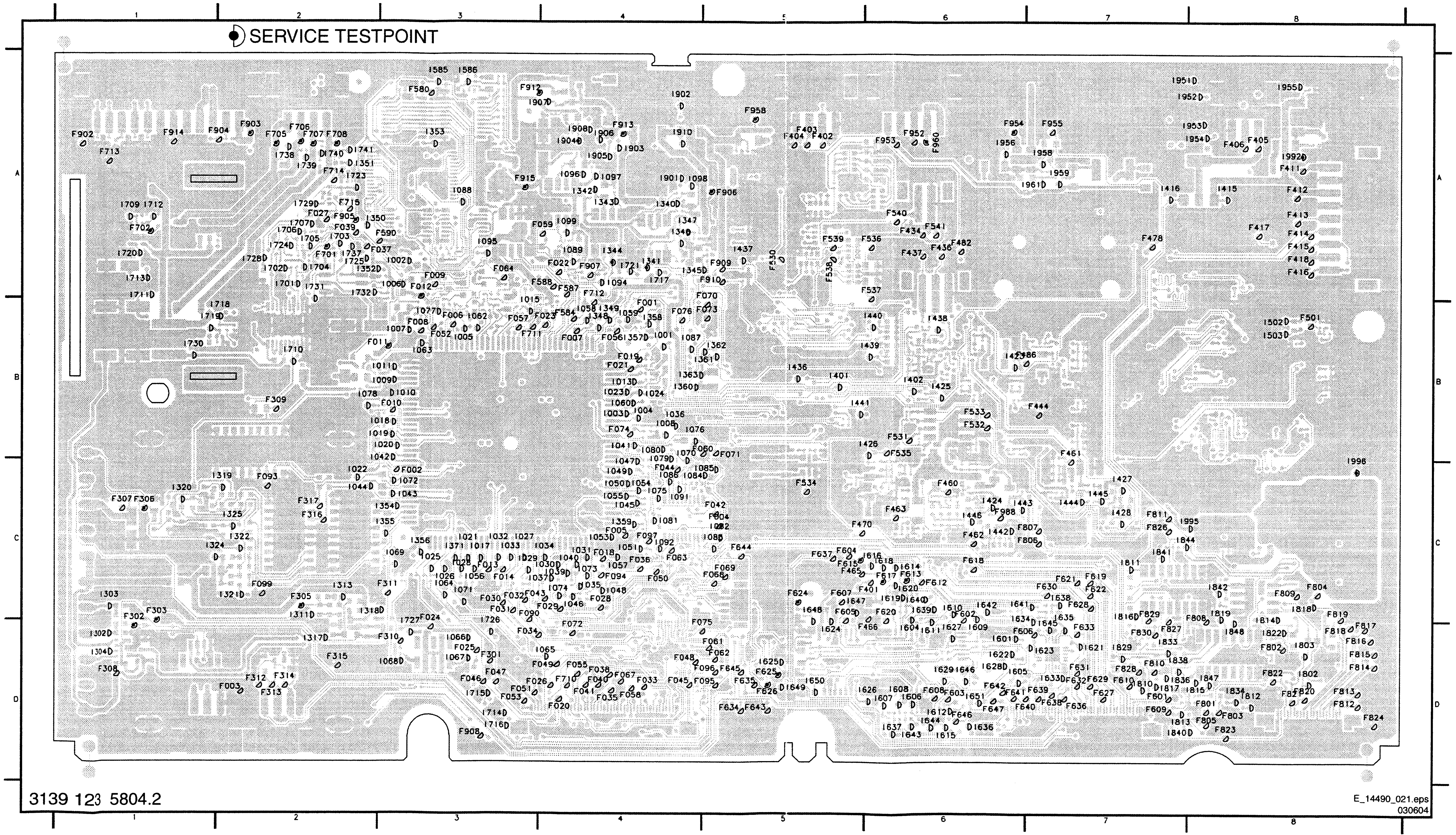
A1 TUNER +VIF
+VTUN
+5VSW
TV
FM
SCL
SDA
COMPAIR
1302
1303
7316
SSIF
SEL_IF
F306
F305
2321
3311
RF_AGC
4327
4331
1328
VIF1
VIF2
6323
4333
4334
1330
SIF1
SIF2
3323
7320
A2 HERCULES
7011 - IF
Sound Traps
AGC Detect
QSS Mixer/ AM Demod.
QSS/FM
AM
CVBS1
CVBS/Y-X
C-X
Input sw.
Output sw.
INA..D
CS1A..D
Dig. 2H/4H Combfilter Y Delay Adj.
Chroma
PAL/NTSC/ SECAM Decoder & Baseband Delay
H/V
RGB/YPBPR Insert YUV Interface
Skin Tone U/V Tint Saturation
SAT
Peaking SCAVEM U/V Delay
SCAVEM on Text
YUV
YUV IN/OUT
RGB Matrix Blue & Black Stretch Gamma Corr.
CON
BRI
R_OSD
G_OSD
B_OSD
Fast Blanking
RO
GO
BO
Sync Sep H-OSC H-Shift H-Drive
HOUT
FB/SC
Vertical & East-West Geometry
VDRA
VDRB
INSSW3
R/Pr-3
G/Y3
B/Pb-3
YOUT
UOUT
VOUT
YIN
UIN
VIN
A3 HISTOGRAM
7014
7013
7012
EF
R_SDTV
G_SDTV
B_SDTV
A13
7018
2020
7016#
7015#
THR
TR
VCC
RES
DISC
OUT
CTRL
H_CS_SDTV
SANDCASTLE
# = NE555 TIMER
7019
2022
3058
7017#
V_SDTV
3010
H1 REAR IO SCART
SCART 2
SCART 1
MON-Out
C-In
L-Out
R-Out
TER-Out
R-In
G-In
B-In
7138
7119
SC1_CVBS_IN
SC2_Y_IN
SC2_C_IN
SC2_CVBS_MON_OUT
P50_LINE_ITV_IR_SW
STATUS_2
SC2_LR_MON_OUT
SC2_LR_IN
SCV1_CVBS_RF_OUT
SC1_FBL_IN
SC1_COMP_R_V_IN
SC1_COMP_AV1_G_Y_CVBS_IN
SC1_COMP_B_U_IN
STATUS_1
SC1_COMP_AV1_LR_IN
SC1_LR_RF-OUT
Const_LR_OUT
LR AUDIO-OUT
1103
1005
P50
STATUS_2
STATUS_1
SVHS_AV2_Y_CVBS_IN
SVHS_C_IN
SC2_CVBS_RF_OUT
Y_NOTCH
HP_DET_R_DC
HP_DET_IN
SVHS_LR_IN
HP_LROUT
D SIDE AV
1301
1104
SVHS 2
VIDEO
AV3
HEAD-PHONE
7562
5560
+12VSW
+8VSW_2
2561
Pix Improvement (Histogram)
7560
A6 TV SUPPLY
1910
AUD-SUP
+3V3STBY
+12VUNREG
5958
+12VSW
A14
POWER_DOWN
STANDBY
BU_LIGHT_ADJ1
LAMP_ON-OFF
TO/FROM 1200 OF POWER SUPPY UNIT
??
F903
F906
F905
F956
7930
OSC
REF
VCC
3931
2931
5931
6930
F915
+5VSW
3910
7910
6910
6911
F912
+VTUN
5920
7920
2921
+8VSW_TV
F913
A2 HERCULES
7011 - SOUND
AD Conv Std Stereo Decoder
I2S Proc
Audio Select ADC/DAC
Audio Control Vol/Treb/ Bass Features DACs
SSIF(Tuner FM)
AudioIN2LR
7370
7371
7372
A3 HISTOGRAM
7377-A
7376-A
7376-B
7377-B
A5 AUDIO AMPLIFIER
7740
AUDOUTLSL
AUDOUTLSR
HP_LOUT
HP_ROUT
7708
AUD-SUP
7703-1
ST_BY
3746
3706
F702
7709
ST-BY
MUTE
F705
F706
F707
F708
F701
1704
RIGHT
LEFT
HP_DET_IN
HP_DET_R_DC
7706
SOUND_ENABLE
POWER_DOWN
STANDBY
EXT_MUTE
3747
7703-2
3732
7710
OUT_MUTE
E_14490_018.eps 040804

Block Diagram Scaler

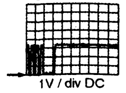

A 2 HERCULES
7011 u-Processor
HERCULES IC
DECDIG
KEYBOARD
LIGHT-SENSOR-SDM
IR
STATUS_2
STATUS_1
P50_LINE_ITV_IR_SW
P50
7075
+3V3STBY
7001,7003
+1V8_A
+1V8_B
7070
+5VSW
SDM PINS 4022
SEL_IF
SOUND_ENABLE
PC-TV-LED
SCL
SDA
NVM_WP
7099 NVM
EXT_MUTE
TV_SC_COM
TV_IRQ
STANDBY
P50
POWER_DOWN
1001
2007
2006
A13 PCHD-MUX
7607 L H PIN
SD_HD_SEL SDTV HDTV 22
PC_HD_SEL ENABLE DISABLE 9
H_CS_SDTV
V_SDTV
HS
VS
7605
7604
H_CS
V
SD_HD_SEL
PC_HD_DET-
PC_HD_DET+
7604-5
6604
6605
PC_HD_DET
R_SDTV
G_SDTV
B_SDTV
RED_PR
GRN_Y
BLU_PB
HD_FILTER
F624
F625
F626
F613
F616
F617
R_PR+
G_Y+
B_PB+
SOG
R_PR-
G_Y-
B_PB-
7604-6
A7 SCALER
A10 SDRAM
7501 SDRAM
ADDRESS
DATA
ANALOG INPUT PORT
FRAME STORE CONTROL
DVI/HDMI INPUT PORT
7401 GM1501 SXGA DISPLAY CONTROLLER
GRAPHIC ZOOM
OSD CONTROLLER
OUT BLENDER
BRIGHTNESS/CONTRAST/HUE/SAT
VIDEO ZOOM
DISPLAY TIMING GEN
EXT. ROM INTER-FACE
UART INTERFACE
MICRO-CONTROLLER
INTERNAL RAM
RESET
OCM_ADDR1
OCM_ADDR2
MSTR_SCL
MSTR_SDA
GPIO_G09_B4
A11 FLASH/CONTROL
+3V3STBY
7532 VCC RESET GND
+3V3_IO
SCREEN SIZE
(1) PRESENT ONLY FOR 23"
(2) PRESENT ONLY FOR 26"
3547-2
3547-3
3551
3552
3546-2
3546-3
7531 NVM
NVM-WP
SCL_IO
SDA_IO
FLASH ROM
A12 RESET
PAN_VCC
TXB0-
TXB3+
TXB0+
TXB3
TXB1-
TXB1+
TXBC+
TXBC-
TXB2-
TXB2+
1403
FOR SETS WITHOUT PIXEL+
FOR SETS WITH PIXEL+
TO LVDS CONNECTOR LCD PANEL
PIXEL+ PANEL
PP2 LVDS IN
PP3 EPLD I/O
7201 THC63LVDF84B LVDS INTERFACE RECEIVER
7101 EP1C12F256C8 EPLD (PIXEL+ PROC)
LVDS_SIGNAL_IN
7403 THC63LVDM83R LVDS TRANS-MITTER
PP1 EPLD CONTROL
7102 EPCS4S18 EPLD FLASH ROM
7108 OC CLOCK GENERATOR
SDA
SCL
RESET_IN
SYNC_OUT
TO LCD PANEL (LVDS)
A 9 SCALER INTERFACE
1409
1001
PP4 POWER SUPPLY
SDA_IO
SCL_IO
PIXEL+_RESET
PIXEL+_SYNC
+3V3STBY
+5V+SWI
GPIO_G07_B6
GPIO_G07_B2
7504 SI2307DS
7505
7501 LF15ABDT
F521
F509
+3V3
+1V1
+5V
H2 PCHD-IO
PC-IN
HS
VS
PC_HD_DET+
PC_HD_DET-
3709
BLU_PB
GRN_Y
RED_PR
UART_TX
UART_RX
RES
7693 DDC NVM
7694 DVI NVM
DDC_5V
DVI-IN
RX2-IN
RX2+IN
SCL_DVI
SDA_DVI
RX1-IN
RX1+IN
DDC_5V
5692
3691
6691
6692
3682
3710
+3V3STBY
+5VSW
HOT_PLUG
RX0-IN
RX0+IN
RXC+IN
RXC-IN
1698
1601
7606
PC_HD_SEL
PC_AUDIO_L
PC_AUDIO_R
PC-AUDIO-IN
4836 AudioIN2L
4838 AudioIN2R
PC-TV-LED
LED-SEL
LIGHT-SENSOR-SDM
IR
KEYBOARD
3640
7640
6640
1104
1301
1302
1540
J FRONT CONTROL
6540
7543
6541
D SIDE AV
LKB 5x 1309~13
HOT_PLUG
PC_HD_DET
POWER_DOWN
TV_SC_COM
Y_NOTCH
GPIO_G09_B1
OCM_INT1
GPI_G09_B3
GPIO_16
+3V3_PLL
2488
1401
2487
OCM_OD0
OCM_OD1
VGA_SCL
VGA_SDA
GPIO_G09_B4
GPIO_G07_B0
GPIO_G07_B5
GPIO_G09_B0
PPWR
PWM1
PBIAS
OCM_TIMER1
UART_TX
UART_RX
SCL
SDA
TV_IRQ
PC_HDMI-AUDIO_SEL
SD_HD_SEL
PC_HD_SEL
PANEL-PWR-CTL
HD_FILTER
LAMP_ON-OFF
** FOR 17" ONLY
* FOR 23" & 26"
4445**
3452*
3444*
7449*
BU_LIGHT_ADJ1
1304
UART FOR SERVICE
A 1
A14 SUPPLY
+3V3STBY
6995
7995
+1V8
7952
OSC
REF
+12VSW
5952
3951/52
2953
2956
5953
6951
3954
F954
2957
+5VSW
I998
2960
5996
5997
5998
+1V8_ADC
+1V8_DVI
+1V8_CORE
7992
I992
2994
5994
+2V5_DDR
PANEL-PWR-CTL
7955
3955
7954
5959
3958
7953
F960
PAN_VCC
E_14490_102.eps
040804

Testpoint Overview TV & Scaler Board (Bottom Side)

F001	B4
F002	C3
F003	D2
F004	C5
F005	C4
F006	B3
F007	B4
F008	B3
F009	A3
F010	B3
F011	B3
F012	A3
F013	C3
F014	C3
F018	C4
F019	B4
F020	D4
F021	B4
F022	A4
F023	B4
F024	D3
F025	D3
F026	D4
F027	A2
F028	C4
F029	C4
F030	C3
F031	C3
F032	C3
F033	D4
F034	D3
F035	D4
F036	C4
F037	A2
F038	D4
F039	A2
F040	D4
F041	D4
F042	C5
F043	C4
F044	C4
F045	D4
F046	D3
F047	D3
F048	D4
F049	D4
F050	C4
F051	D3
F052	B3
F053	D3
F055	D4
F056	B4
F057	B3
F058	D4
F059	A4
F060	B5
F061	D5
F062	D5
F063	C4
F064	A3
F067	D4
F068	C5
F069	C5
F070	B5
F071	B5
F072	D4
F073	B5
F074	B4
F075	D4
F076	B4
F090	C3
F093	C2
F094	C4
F095	D5
F096	D5
F097	C4
F099	C2
F301	D3
F302	D1
F303	D1
F305	C2
F306	C1
F307	C1
F308	D1
F309	B2
F310	D3
F311	C3
F312	D2
F313	D2
F314	D2
F315	D2
F316	C2
F317	C2
F401	C6
F402	A5
F403	A5
F404	A5
F405	A8
F406	A8
F411	A8
F412	A8
F413	A8
F414	A8
F415	A8
F416	A8
F417	A8
F418	A8
F434	A6
F436	A6
F437	A6
F444	B7
F460	C6
F461	C7
F462	C6
F463	C6
F465	C5
F466	C6
F470	C5
F478	A7
F482	A6
F486	B6
F501	B8
F530	A5
F531	B6
F532	B6
F533	B6
F534	C5
F535	B6
F536	A6
F537	A6
F538	A5
F539	A5
F540	A6
F541	A6
F580	A3
F584	B4
F587	A4
F588	A4
F590	A2
F601	D7
F602	C6
F603	D6
F604	C5
F605	C5
F606	D7
F607	C5
F608	D6
F609	D7
F610	D7
F612	C6
F613	C6
F615	C5
F617	C6
F618	C6
F619	C7
F620	C6
F621	C7
F622	C7
F624	C5
F625	D5
F626	D5
F627	D7
F628	C7
F629	D7
F630	C7
F631	D7
F632	D7
F633	D7
F634	D5
F635	D5
F636	D7
F637	C5
F638	D7
F639	D7
F640	D6
F641	D6
F642	D6
F643	D5
F644	C5
F645	D5
F646	D6
F647	D6
F701	A2
F702	A1
F705	A2
F706	A2
F707	A2
F708	A2
F710	D4
F711	B3
F712	B4
F713	A1
F714	A2
F715	A2
F801	D8
F802	D8
F803	D8
F804	C8
F805	D8
F806	C7
F807	C7
F808	C8
F809	C8
F810	D7
F811	C7
F812	D8
F813	D8
F814	D8
F815	D8
F816	D8
F817	D8
F818	D8
F819	C8
F820	D8
F821	D8
F822	D8
F823	D8
F824	D8
F826	C7
F827	C7
F828	D7
F829	C7
F830	D7
F902	A1
F903	A2
F904	A2
F905	A2
F906	A5
F907	A4
F908	D3
F909	A5
F910	A5
F912	A3
F913	A4
F914	A1
F915	A3
F952	A6
F953	A6
F954	A6
F955	A7
F958	A5
F960	A6
F988	C6
I001	B4
I002	A3
I003	B4
I004	B4
I005	B3
I006	A3
I007	B3
I008	B4
I009	B3
I010	B3
I011	B3
I013	B4
I015	B3
I017	C3
I018	B3
I019	B3
I020	B3
I021	C3
I022	C2
I023	B4
I024	B4
I025	C3
I026	C3
I027	C3
I028	C3
I029	C3
I030	C4
I031	C4
I032	C3
I033	C3
I034	C4
I035	C4
I036	B4
I037	C4
I039	C4
I040	C4
I041	B4
I042	B3
I043	C3
I044	C2
I045	C4
I046	C4
I047	C4
I048	C4
I049	C4
I050	C4
I051	C4
I053	C4
I054	C4
I055	C4
I056	C3
I057	C4
I058	B4
I059	B4
I060	B4
I062	B3
I063	B3
I064	C3
I065	D4
I066	D3
I067	D3
I068	D3
I069	C3
I070	C4
I071	C3
I072	C3
I073	C4
I074	C4
I075	C4
I076	B4
I077	B3
I078	B2
I079	B4
I080	B4
I081	C4
I082	C5
I083	C5
I084	C5
I085	C5
I086	C4
I087	B4
I088	A3
I089	A4
I091	C4
I092	C4
I094	A4
I095	A3
I096	A4
I097	A4
I098	A4
I099	A4
I302	D1
I303	C1
I304	D1
I311	C2
I313	C2
I317	D2
I318	C3
I319	C2
I320	C1
I321	C2
I322	C2
I324	C1
I325	C2
I340	A4
I341	A4
I342	A4
I343	A4
I344	A4
I345	A5
I346	A4
I347	A4
I348	B4
I349	B4
I350	A2
I351	A2
I352	A2
I353	A3
I354	C3
I355	C3
I356	C3
I357	B4
I358	B4
I359	C4
I360	B4
I361	B5
I362	B5
I363	B4
I371	C3
I401	B5
I402	B6
I415	A8
I416	A7
I423	B6
I424	C6
I425	B6
I426	B6
I427	C7
I428	C7
I436	B5
I437	A5
I438	B6
I439	B6
I440	B6
I441	B5
I442	C6
I443	C6
I444	C7
I445	C7
I446	C6
I502	B8
I503	B8
I585	A3
I586	A3
I601	D6
I604	C6
I605	D6
I606	D6
I607	D6
I608	D6
I609	C6
I610	C6
I611	D6
I612	D6
I614	C6
I615	D6
I616	C6
I618	C6
I619	C6
I620	C6
I621	D7
I622	D6
I623	D7
I624	D5
I625	D5
I626	D6
I627	D6
I628	D6
I629	D6
I633	D7
I634	D7
I635	D7
I636	D6
I637	D6
I638	C7
I639	C6
I640	C6
I641	C7
I642	C6
I643	D6
I644	D6
I645	D7
I646	D6
I647	C5
I648	D5
I649	D5
I650	D5
I651	D6
I701	A2
I702	A2
I703	A2
I704	A2
I705	A2
I706	A2
I707	A2
I709	A1
I710	B2
I711	A1
I712	A1
I713	A1
I714	D3
I715	D3
I716	D3
I717	A4
I718	B2
I719	B1
I720	A1
I721	A4
I723	A2
I724	A2
I725	A2
I726	D3
I727	D3
I728	A2
I729	A2
I730	B1
I731	B2
I732	A2
I737	A2
I738	A2
I739	A2
I740	A2
I741	A2
I802	D8
I803	D8
I810	D7
I811	C7
I812	D8
I813	D7
I814	C8
I815	D8
I816	C7
I817	D7
I818	C8
I819	C8
I822	D8
I829	D7
I833	D7
I834	D8
I836	D7
I838	D7
I840	D8
I841	C7
I842	C8
I844	C7
I847	D8
I848	D8
I901	A4
I902	A4
I903	A4
I904	A4
I905	A4
I906	A4
I907	A4
I908	A4
I910	A4
I951	A8
I952	A8
I953	A8
I954	A8
I955	A8
I956	A6
I958	A7
I959	A7
I961	A7
I992	A8
I995	C8
I996	C8

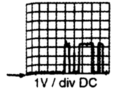


F302



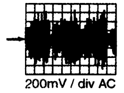
1V / div DC
20us / div

F303



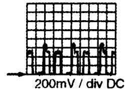
1V / div DC
20us / div

F306



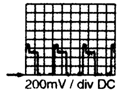
200mV / div AC
20us / div

F613



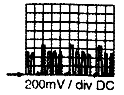
200mV / div DC
20us / div

F615



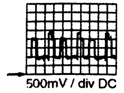
200mV / div DC
20us / div

F617



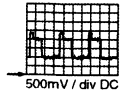
200mV / div DC
20us / div

F624



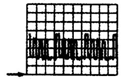
500mV / div DC
20us / div

F625



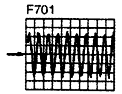
500mV / div DC
20us / div

F626



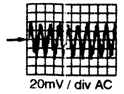
500mV / div DC
20us / div

F701



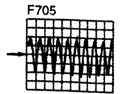
20mV / div AC
1ms / div

F702



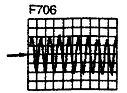
20mV / div AC
1m ; / div

F705



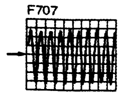
50mV / div AC
1ms / div

F706



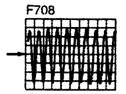
50mV / div AC
1ms / div

F707



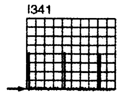
50mV / div AC
1ms / div

F708



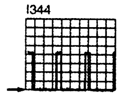
50mV / div AC
1ms / div

I341



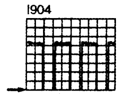
1V / div DC
5ms / div

I344



1V / div DC
20us / div

I904

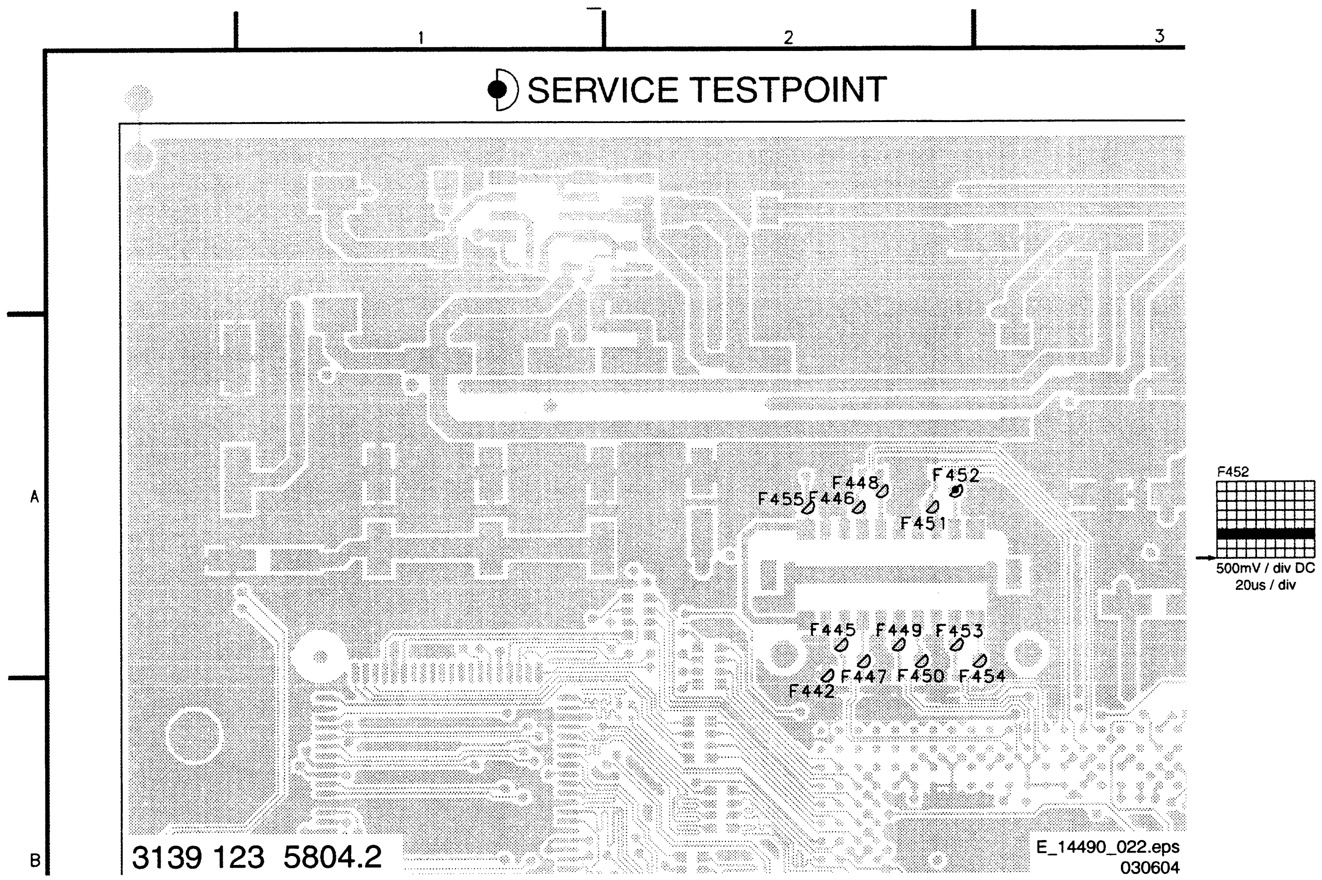


2V / div DC
5us / div

F305 No wafeform available

F011	1V9
F012	1V9
F903	11V9
F905	3V3
F906	11V6
F915	5V3
F912	33V7
F913	8V
F958	11V6
F960	11V4
F954	5V4
F992	2V5
F996	1V8

Testpoint Overview TV & Scaler Board (Top Side)


1
2
3
A
B
SERVICE TESTPOINT
F448
F452
F455
F446
F451
F445
F449
F453
F447
F450
F454
F442
3139 123 5804.2
F452
500mV / div DC
20us / div

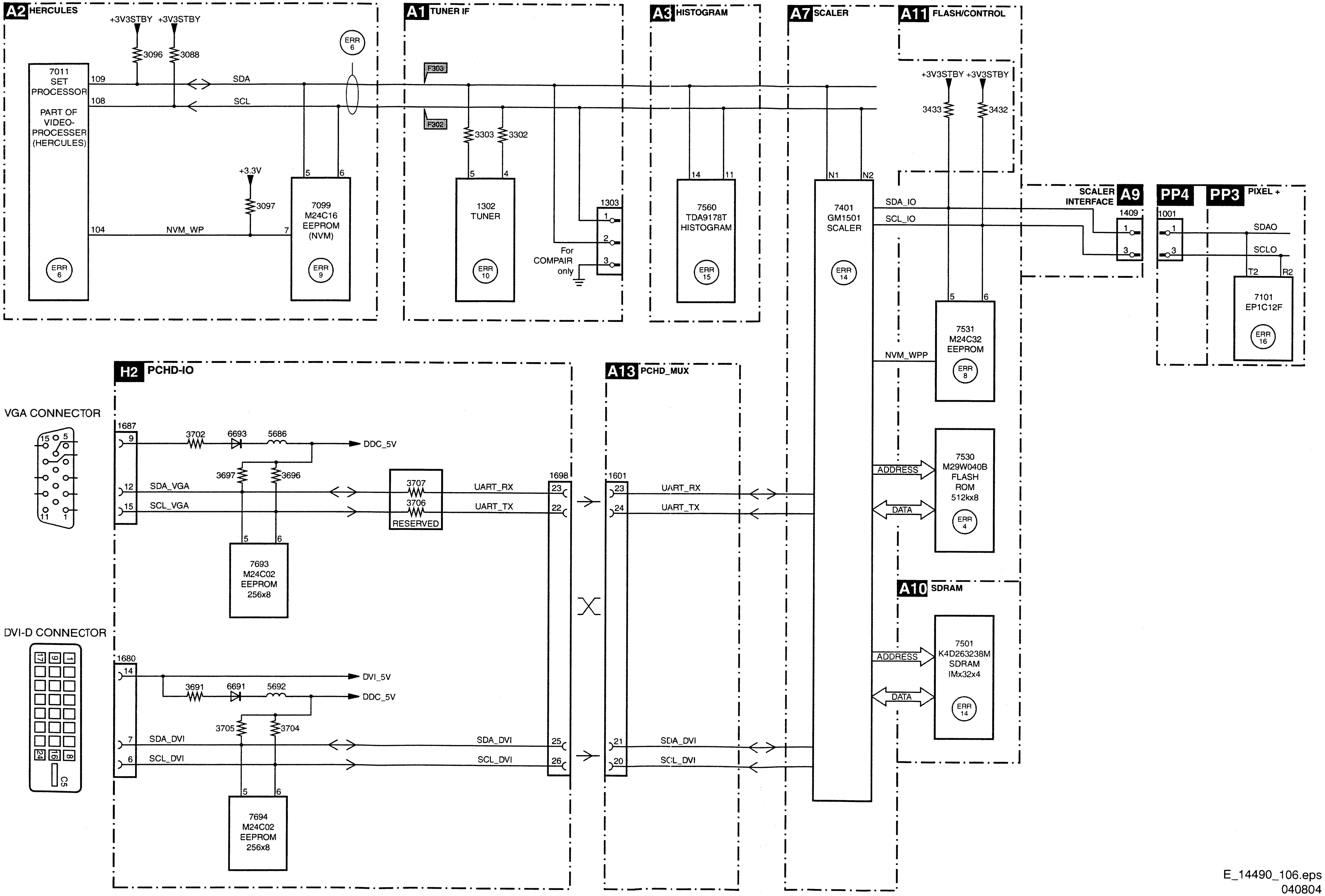
E_14490_022.eps
030604

Personal Notes:

E_06532_012.eps
130204

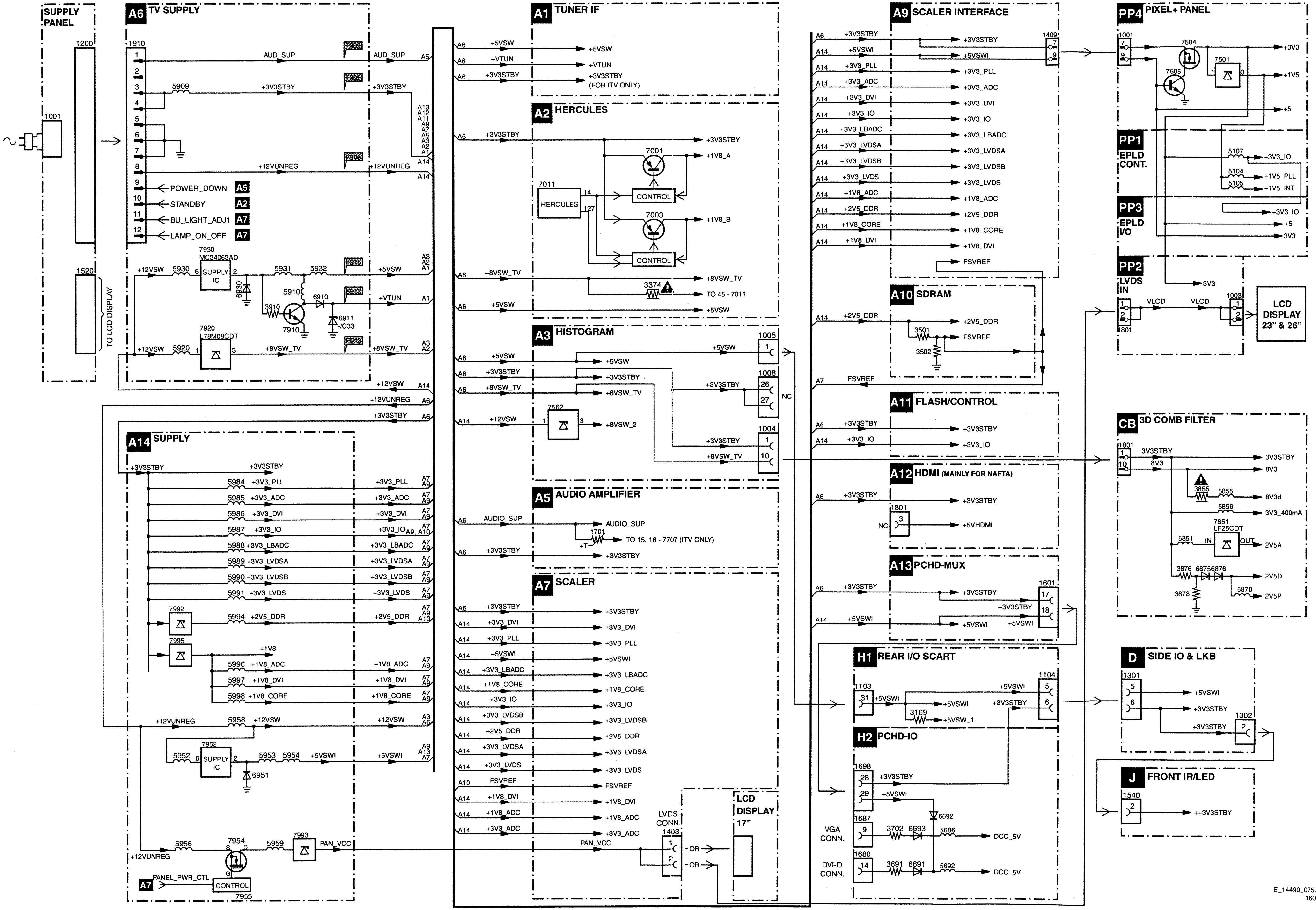
I2C IC Overview

I2C BUS INTERCONNECTION DIAGRAM


A2 HERCULES
+3V3STBY +3V3STBY
3096 3088
7011 SET PROCESSOR PART OF VIDEO-PROCESSER (HERCULES)
109 SDA
108 SCL
104 NVM_WP
+3.3V
3097
7099 M24C16 EEPROM (NVM)
ERR 6
ERR 9
A1 TUNER IF
F303
F302
3303 3302
1302 TUNER
ERR 10
1303
For COMPAIR only
A3 HISTOGRAM
7560 TDA9178T HISTOGRAM
ERR 15
A7 SCALER
N1 N2
7401 GM1501 SCALER
ERR 14
SDA_IO
SCL_IO
NVM_WPP
ADDRESS
DATA
A11 FLASH/CONTROL
+3V3STBY +3V3STBY
3433 3432
7531 M24C32 EEPROM
ERR 8
7530 M29W040B FLASH ROM 512kx8
ERR 4
A10 SDRAM
7501 K4D263238M SDRAM IMx32x4
SCALER INTERFACE A9
1409
PP4
1001
PP3 PIXEL +
SDAO
SCLO
T2 R2
7101 EP1C12F
ERR 16
H2 PCHD-IO
VGA CONNECTOR
1687
3702 6693 5686
DDC_5V
3697 3696
SDA_VGA
SCL_VGA
3707 3706 RESERVED
UART_RX
UART_TX
7693 M24C02 EEPROM 256x8
1698
DVI-D CONNECTOR
1680
DVI_5V
3691 6691 5692
3705 3704
SDA_DVI
SCL_DVI
7694 M24C02 EEPROM 256x8
A13 PCHD_MUX
1601

E_14490_106.eps
040804

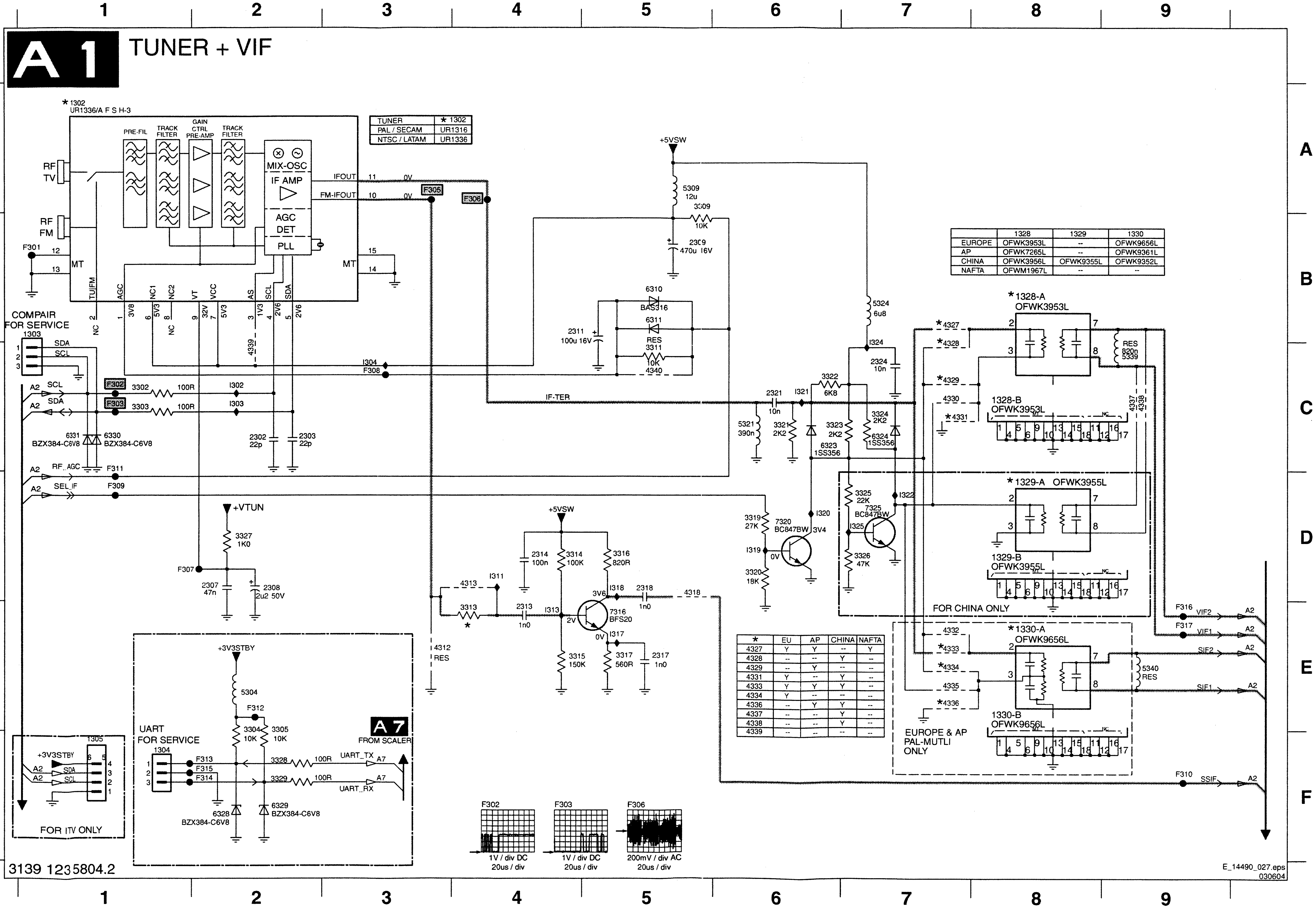
Supply Voltage Overview


SUPPLY PANEL
1200
1001
1520
TO LCD DISPLAY
A6 TV SUPPLY
1910
AUD_SUP
5909
+3V3STBY
+12VUNREG
POWER_DOWN A5
STANDBY A2
BU_LIGHT_ADJ1 A7
LAMP_ON_OFF A7
F903
F905
F906
F915
F912
F913
7930 MC34063AD
SUPPLY IC
+12VSW
5930
6930
5931
5932
5910
3910
7910
6910
6911 -/C33
+5VSW
+VTUN
7920 L78M08CDT
5920
+8VSW_TV
+12VSW
+12VUNREG
+3V3STBY
A14 SUPPLY
5984 +3V3_PLL
5985 +3V3_ADC
5986 +3V3_DVI
5987 +3V3_IO
5988 +3V3_LBADC
5989 +3V3_LVDSA
5990 +3V3_LVDSB
5991 +3V3_LVDS
7992
5994 +2V5_DDR
7995
+1V8
5996 +1V8_ADC
5997 +1V8_DVI
5998 +1V8_CORE
5958 +12VSW
7952
SUPPLY IC
5952
5953
5954
+5VSWI
6951
5956
7954
5959
7993
PAN_VCC
PANEL_PWR_CTL
CONTROL
7955
A1 TUNER IF
+5VSW
+VTUN
+3V3STBY (FOR ITV ONLY)
A2 HERCULES
7011 HERCULES
7001
+1V8_A
CONTROL
7003
+1V8_B
+8VSW_TV
3374
TO 45 - 7011
A3 HISTOGRAM
1005
1008
1004
NC
7562
+8VSW_2
A5 AUDIO AMPLIFIER
AUDIO_SUP
1701
TO 15, 16 - 7707 (ITV ONLY)
A7 SCALER
+3V3STBY
+3V3_DVI
+3V3_PLL
+5VSWI
+3V3_LBADC
+1V8_CORE
+3V3_IO
+3V3_LVDSB
+2V5_DDR
+3V3_LVDSA
+3V3_LVDS
FSVREF
+1V8_DVI
+1V8_ADC
+3V3_ADC
PAN_VCC
LVDS CONN 1403
-OR-
LCD DISPLAY 17"
A9 SCALER INTERFACE
1409
+3V3_PLL
+3V3_ADC
+3V3_DVI
+3V3_IO
+3V3_LBADC
+3V3_LVDSA
+3V3_LVDSB
+3V3_LVDS
+1V8_ADC
+2V5_DDR
+1V8_CORE
+1V8_DVI
FSVREF
A10 SDRAM
3501
3502
A11 FLASH/CONTROL
A12 HDMI (MAINLY FOR NAFTA)
1801
+5VHDMI
A13 PCHD-MUX
1601
H1 REAR I/O SCART
1103
1104
3169
+5VSW_1
H2 PCHD-IO
1698
VGA CONN.
1687
3702
6693
5686
DCC_5V
6692
DVI-D CONN.
1680
3691
6691
5692
PP4 PIXEL+ PANEL
1001
7504
7505
7501
+3V3
+1V5
+5
PP1 EPLD CONT.
5107
5104
5105
+3V3_IO
+1V5_PLL
+1V5_INT
PP3 EPLD I/O
3V3
PP2 LVDS IN
801
1003
VLCD
LCD DISPLAY 23" & 26"
CB 3D COMB FILTER
1801
3V3STBY
8V3
3855
5855
8V3d
5856
3V3_400mA
7851 LF25CDT
5851
IN
OUT
2V5A
3876
6875
6876
2V5D
3878
5870
2V5P
D SIDE IO & LKB
1301
1302
J FRONT IR/LED
1540
++3V3STBY

E_14490_075.eps
160704

7. Circuit Diagrams and PWB Layouts

TV & Scaler Board: Tuner + VIF


A1 TUNER + VIF
★1302 UR1336/A F S H-3
PRE-FIL
TRACK FILTER
GAIN CTRL PRE-AMP
TRACK FILTER
MIX-OSC
IF AMP
AGC DET
PLL
RF TV
RF FM
IFOUT
FM-IFOUT
MT
TU/FM
AGC
NC1
NC2
VT
VCC
AS
SCL
SDA
F301
F305
F306
COMPAIR FOR SERVICE 1303
SDA
SCL
+5VSW
5309 12u
3309 10K
2309 470u 16V
6310 BAS316
6311 RES
3311 10K
4340
2311 100u 16V
I304
F308
F302
F303
3302 100R
3303 100R
I302
I303
6331 BZX384-C6V8
6330 BZX384-C6V8
2302 22p
2303 22p
RF_AGC F311
SEL_IF F309
IF-TER
+VTUN
3327 1K0
F307
2307 47n
2308 2u2 50V
+5VSW
2314 100n
3314 100K
3316 820R
4313
I311
3313
2313 1n0
I313
7316 BFS20
I318
2318 1n0
4318
I317
3315 150K
3317 560R
2317 1n0
4312 RES
5324 6u8
I324
2324 10n
3322 6K8
2321 10n
I321
5321 390n
3321 2K2
3323 2K2
3324 2K2
6323 1SS356
6324 1SS356
3319 27K
7320 BC847BW
I320
3V4
I319
3320 18K
3325 22K
7325 BC847BW
I322
I325
3326 47K
★1328-A OFWK3953L
★4327
★4328
★4329
4330
★4331
1328-B OFWK3953L
RES 820n 5339
4337
4338
★1329-A OFWK3955L
1329-B OFWK3955L
FOR CHINA ONLY
★1330-A OFWK9656L
4332
★4333
★4334
4335
★4336
1330-B OFWK9656L
5340 RES
EUROPE & AP PAL-MUTLI ONLY
F316 VIF2
F317 VIF1
SIF2
SIF1
F310 SSIF
+3V3STBY
5304
F312
3304 10K
3305 10K
UART FOR SERVICE 1304
F313
F315
F314
3328 100R UART_TX
3329 100R UART_RX
A7 FROM SCALER
6328 BZX384-C6V8
6329 BZX384-C6V8
1305
FOR ITV ONLY
F302 1V / div DC 20us / div
F303 1V / div DC 20us / div
F306 200mV / div AC 20us / div
3139 123 5804.2
E_14490_027.eps 030604

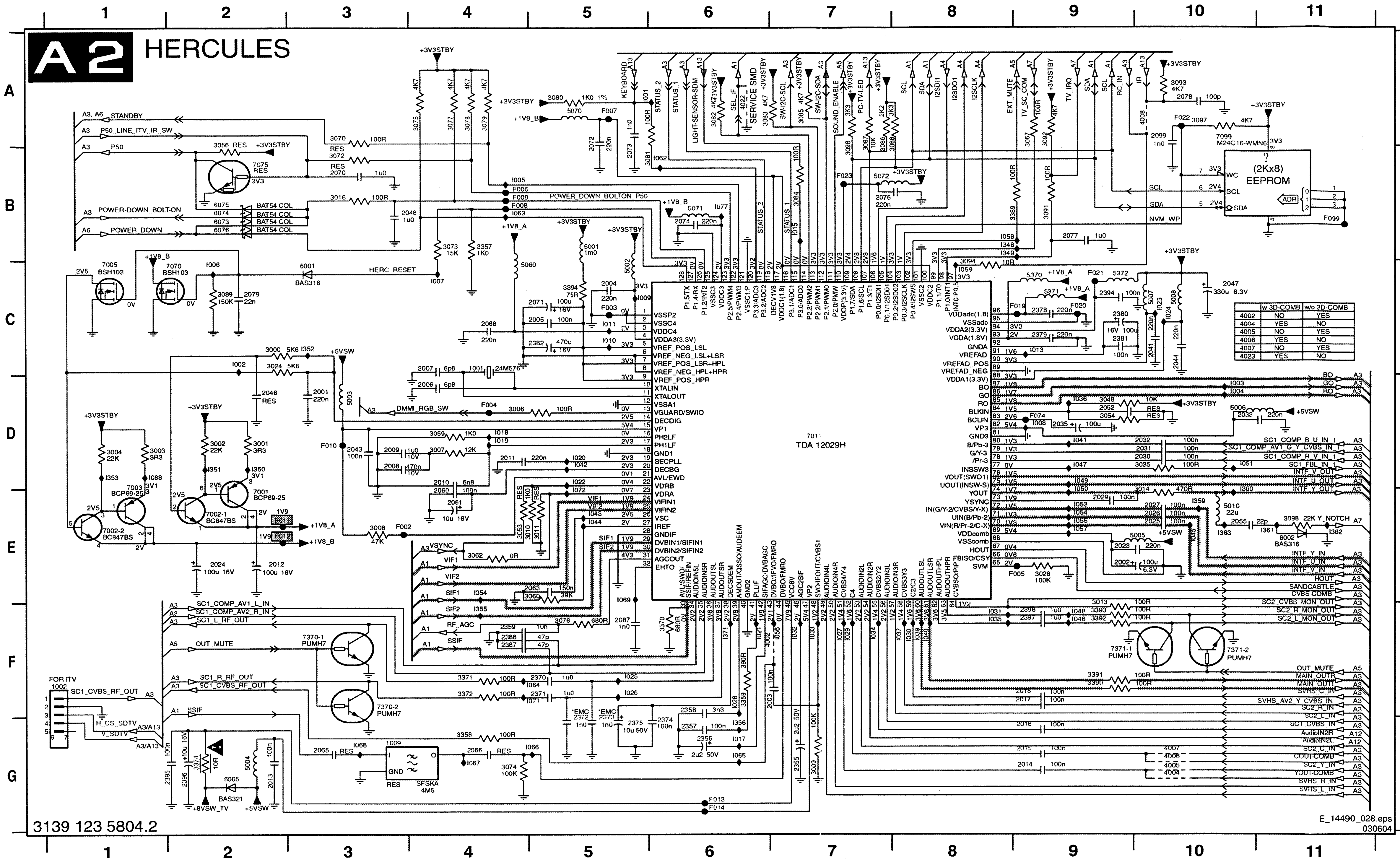
TUNER	★ 1302
PAL / SECAM	UR1316
NTSC / LATAM	UR1336

	1328	1329	1330
EUROPE	OFWK3953L	--	OFWK9656L
AP	OFWK7265L	--	OFWK9361L
CHINA	OFWK3956L	OFWK9355L	OFWK9352L
NAFTA	OFWM1967L	--	--

★	EU	AP	CHINA	NAFTA
4327	Y	Y	--	Y
4328	--	--	Y	--
4329	--	Y	--	--
4331	Y	--	Y	--
4333	Y	Y	Y	--
4334	Y	--	--	--
4336	--	Y	Y	--
4337	--	--	Y	--
4338	--	--	Y	--
4339	--	--	--	--

1302	A1
1303	B1
1304	F1
1305	F1
1328-A	B8
1328-B	C8
1329-A	D8
1329-B	D8
1330-A	E8
1330-B	E8
2302	C2
2303	C2
2307	D2
2308	D2
2309	B5
2311	B4
2313	E4
2314	D4
2317	E5
2318	D5
2321	C6
2324	C7
3302	C1
3303	C1
3304	E2
3305	E2
3309	A5
3311	C5
3313	E4
3314	D4
3315	E4
3316	D5
3317	E5
3319	D6
3320	D6
3321	C6
3322	C6
3323	C6
3324	C7
3325	D7
3326	D7
3327	D2
3328	F2
3329	F2
4312	E3
4313	D4
4318	D5
4327	B7
4328	C7
4329	C7
4330	C7
4331	C7
4332	E7
4333	E7
4334	E7
4335	E7
4336	E7
4337	C9
4338	C9
4339	C2
4340	C5
5304	E2
5309	A5
5321	C6
5324	B7
5339	C9
5340	E9
6310	B5
6311	B5
6323	C6
6324	C7
6328	F2
6329	F2
6330	C1
6331	C1
7316	E5
7320	D6
7325	D7
F301	B1
F302	C1
F303	C1
F305	A3
F306	A4
F307	D1
F308	C3
F309	D1
F310	F9
F311	C1
F312	E2
F313	F2
F314	F2
F315	F2
F316	E9
F317	E9
I302	C2
I303	C2
I304	C3
I311	D4
I313	E4
I317	E5
I318	D5
I319	D6
I320	D6
I321	C6
I322	D7
I324	B7
I325	D7

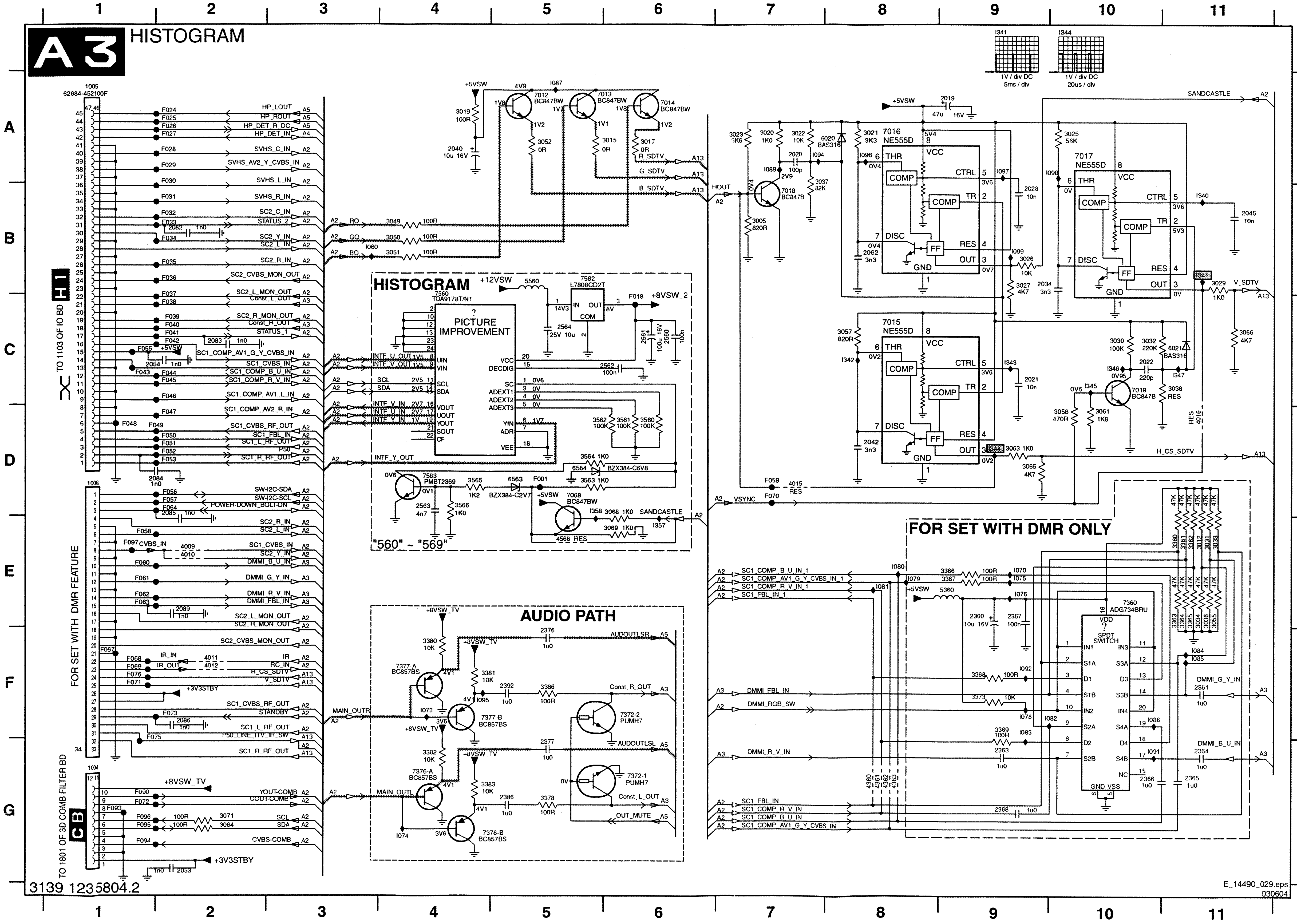
TV & Scaler Board: Hercules


A2 HERCULES
1 2 3 4 5 6 7 8 9 10 11
A B C D E F G
7011
TDA 12029H
7099
M24C16-WMN6
(2Kx8)
EEPROM
STANDBY
P50_LINE_ITV_IR_SW
P50
POWER-DOWN_BOLT-ON
POWER_DOWN
POWER_DOWN_BOLTON_P50
HERC_RESET
BAT54 COL
7005 BSH103
7070 BSH103
7002-2 BC847BS
7002-1 BC847BS
7003 BCP69-25
7001 BCP69-25
7075 RES
7370-1 PUMH7
7370-2 PUMH7
7371-1 PUMH7
7371-2 PUMH7
1009 SFSKA 4M5
1001 24M576
DMMI_RGB_SW
KEYBOARD
STATUS_2
STATUS_1
LIGHT-SENSOR-SDM
SEL_IF
SERVICE SMD
SW-I2C-SCL
SW-I2C-SDA
SOUND_ENABLE
PC-TV-LED
SCL
SDA
I2SD01
I2SDO1
I2SCLK
EXT_MUTE
TV_SC_COM
TV_IRQ
RC_IN
IR
NVM_WP
+3V3STBY
+1V8_B
+1V8_A
+5VSW
+8VSW_TV
SC1_COMP_AV1_L_IN
SC1_COMP_AV2_R_IN
SC1_L_RF_OUT
OUT_MUTE
SC1_R_RF_OUT
SC1_CVBS_RF_OUT
SSIF
FOR ITV
1002
H_CS_SDTV
V_SDTV
BO GO RO
SC1_COMP_B_U_IN
SC1_COMP_AV1_G_Y_CVBS_IN
SC1_COMP_R_V_IN
SC1_FBL_IN
INTF_V_OUT
INTF_U_OUT
INTF_Y_OUT
Y_NOTCH
INTF_Y_IN
INTF_U_IN
INTF_V_IN
HOUT
SANDCASTLE
CVBS-COMB
SC2_CVBS_MON_OUT
SC2_R_MON_OUT
SC2_L_MON_OUT
MAIN_OUTR
MAIN_OUTL
SVHS_C_IN
SVHS_AV2_Y_CVBS_IN
SC2_R_IN
SC2_L_IN
SC1_CVBS_IN
AudioIN2R
AudioIN2L
SC2_C_IN
COUT-COMB
SC2_Y_IN
YOUT-COMB
SVHS_R_IN
SVHS_L_IN
3139 123 5804.2
E_14490_028.eps
030604

	w 3D-COMB	w/o 3D-COMB
4002	NO	YES
4004	YES	NO
4005	NO	YES
4006	YES	NO
4007	NO	YES
4023	YES	NO

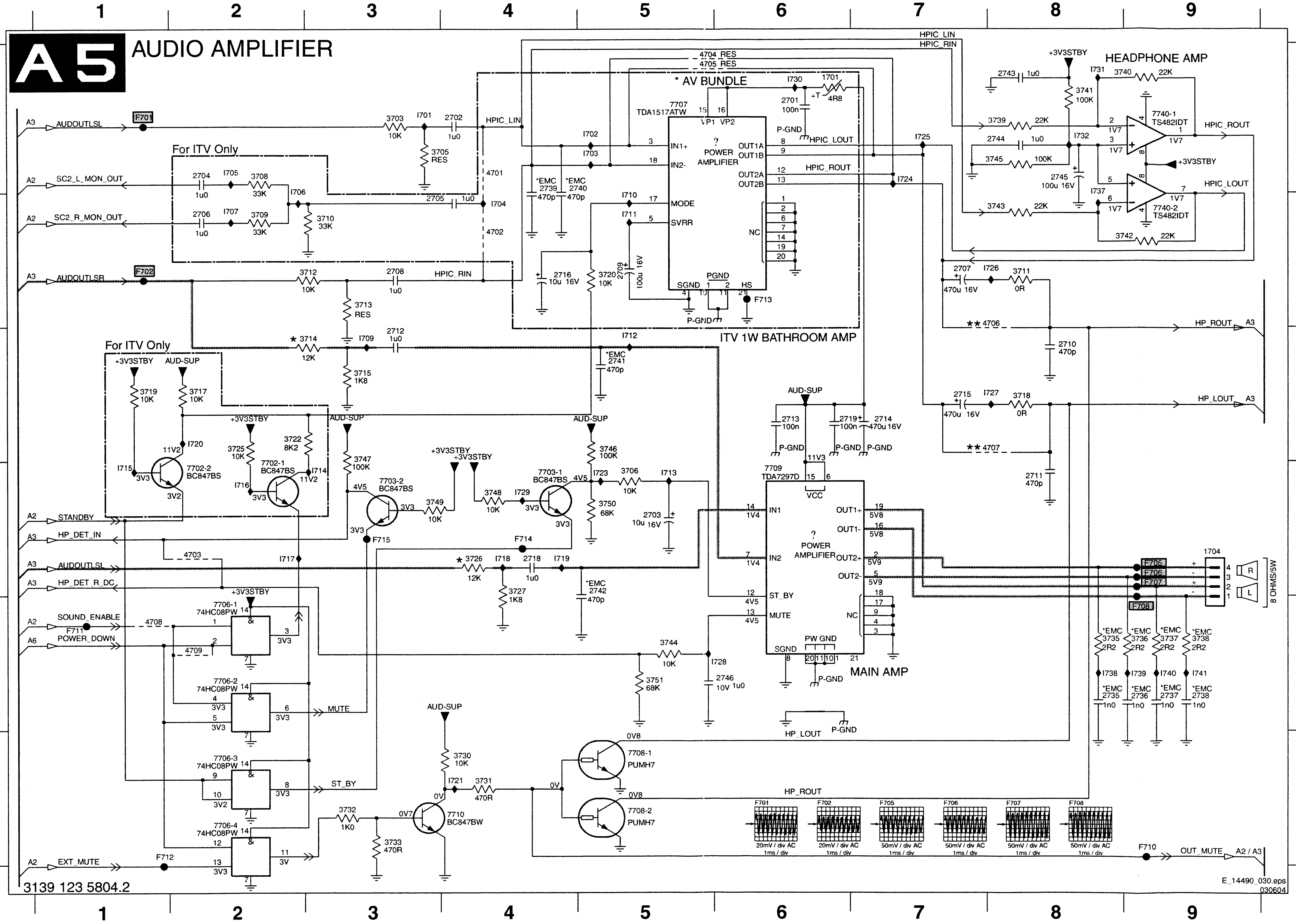
1001	C4
1002	F1
1009	G3
2001	D3
2002	E9
2003	F7
2004	C5
2005	C5
2006	D4
2007	C4
2008	D3
2009	D3
2010	D4
2011	D4
2012	E2
2013	G2
2014	G9
2015	G9
2016	G9
2017	F9
2018	F9
2023	E9
2024	E2
2025	E10
2026	E10
2027	E10
2029	E9
2030	D10
2031	D10
2032	D10
2033	D10
2035	D9
2041	C10
2043	D3
2044	C10
2046	D2
2047	C10
2048	B4
2052	D9
2055	E10
2060	E4
2061	E4
2063	E5
2065	G3
2066	G4
2068	C4
2070	B3
2071	C5
2072	A5
2073	B5
2074	B6
2076	B7
2077	B9
2078	A10
2079	C2
2087	F5
2099	A10
2355	G7
2356	G6
2357	G6
2358	F6
2359	F4
2370	F5
2371	F5
2372	F5
2373	F5
2374	G6
2375	G5
2378	C9
2379	C9
2380	C9
2381	C9
2382	C5
2387	F4
2388	F4
2394	C9
2395	G2
2396	G2
2397	F9
2398	F9
3000	C2
3001	D2
3002	D2
3003	D1
3004	D1
3006	D4
3007	D4
3008	E3
3009	G7
3010	E5
3011	E5
3013	E9
3014	E10
3016	B3
3024	C2
3028	E9
3035	D10
3048	D9
3053	E4
3054	D9
3056	B2
3059	D4
3060	E5
3062	E4
3067	B9
3070	A3
3072	B3
3073	B4
3074	G4
3075	A4
3076	F5
3077	A4
3078	A4
3079	A4
3080	A5
3081	B6
3082	A6
3083	A6
3084	B7
3085	A7
3086	A7
3087	A7
3088	A8
3089	C2
3091	B9
3092	B9
3093	A10
3094	C8
3096	B7
3097	A10
3098	E11
3357	B4
3358	G4
3359	F6
3370	F6
3371	F4
3372	F4
3374	G2
3389	B9
3390	F9
3391	F9
3392	F9
3393	F9
3394	C5
4002	F6
4004	G10
4005	G10
4006	G10
4007	G10
4008	A10
4022	A6
5001	B5
5002	C5
5003	D3
5004	G2
5005	E10
5006	D10
5007	C10
5008	C10
5010	E10
5060	C4
5070	A5
5071	B6
5072	B7
5370	C9
5371	C9
5372	C9
6001	C3
6002	E11
6005	G2
6073	B2
6074	B2
6075	B2
6076	B2
7001	E2
7002-1	E2
7002-2	E1
7003	E1
7005	C1
7011	D7
7070	C2
7075	B2
7099	A10
7370-1	F3
7370-2	F3
7371-1	F9
7371-2	F10
F002	E3
F003	C5
F004	D4
F005	E9
F006	B4
F007	A5
F008	B4
F009	B4
F010	D3
F011	E2
F012	E2
F013	G6
F014	G6
F019	C9
F020	C9
F021	C9
F022	A10
F023	B7
F074	D9
F099	B11
I001	A5
I002	C2
I003	D10
I004	D10
I005	B4
I006	C2
I007	C4
I008	D9
I009	C5
I010	C5
I011	C5
I013	C9
I015	B7
I017	G6
I018	D4
I019	D4
I020	D5
I021	F6
I022	D5
I023	C10
I024	C10
I025	F5
I026	F5
I027	F7
I028	F6
I029	F7
I030	F8
I031	F8
I032	F7
I033	F7
I034	F7
I035	F8
I036	D9
I037	F8
I039	F8
I040	F8
I041	D9
I042	D5
I043	E5
I044	E5
I045	E10
I046	F9
I047	D9
I048	F9
I049	D9
I050	E9
I051	D10
I053	E9
I054	E9
I055	E9
I056	F7
I057	E9
I058	B8
I059	C8
I062	B6
I063	B4
I064	F5
I065	G6
I066	G5
I067	G4
I068	G3
I069	E5
I071	F5
I072	E5
I077	B6
I088	D1
I348	B8
I349	B8
I350	D2
I351	D2
I352	C3
I353	D1
I354	E4
I355	F4
I356	G6
I359	E10
I360	E10
I361	E11
I362	E11
I363	E10
I371	F6

TV & Scaler Board: Histogram


A3
HISTOGRAM
HISTOGRAM
7560 TDA9178T/N1
PICTURE IMPROVEMENT
7562 L7808CD2T
+12VSW
+8VSW_2
"560" ~ "569"
AUDIO PATH
FOR SET WITH DMR ONLY
7016 NE555D
7015 NE555D
7017 NE555D
7360 ADG734BRU
SPDT SWITCH
7012 BC847BW
7013 BC847BW
7014 BC847BW
7018 BC847B
7019 BC847B
7068 BC847BW
7563 PMBT2369
7377-A BC857BS
7377-B BC857BS
7376-A BC857BS
7376-B BC857BS
7372-1 PUMH7
7372-2 PUMH7
1005 62684-452100F
TO 1103 OF IO BD
H1
FOR SET WITH DMR FEATURE
TO 1801 OF 3D COMB FILTER BD
CB
SANDCASTLE
HOUT
VSYNC
R_SDTV
G_SDTV
B_SDTV
V_SDTV
H_CS_SDTV
AUDOUTLSR
AUDOUTLSL
Const_R_OUT
Const_L_OUT
OUT_MUTE
MAIN_OUTR
MAIN_OUTL
+5VSW
+8VSW_TV
+3V3STBY
I341 1V / div DC 5ms / div
I344 1V / div DC 20us / div
3139 123 5804.2
E_14490_029.eps
030604

1004	G1
1005	A1
1008	D1
2019	A9
2020	A7
2021	C9
2022	C10
2028	B9
2034	B9
2040	A4
2042	D8
2045	B11
2053	G2
2054	C1
2062	B8
2082	B2
2083	C2
2084	D2
2085	D2
2086	F2
2089	E2
2360	E9
2361	F11
2363	G9
2364	G11
2365	G11
2366	G10
2367	E9
2368	G9
2376	F5
2377	G5
2386	G5
2392	F5
2560	C6
2561	C6
2562	C6
2563	D4
2564	C5
3005	B7
3012	E11
3015	A6
3017	A6
3019	A4
3020	A7
3021	A8
3022	A7
3023	A7
3025	A10
3026	B9
3027	B9
3029	B11
3030	C10
3031	E11
3032	C10
3033	E11
3034	E11
3036	E11
3037	A7
3038	C11
3049	B4
3050	B4
3051	B4
3052	A5
3055	E11
3057	C8
3058	D10
3061	D10
3063	D9
3064	G2
3065	D9
3066	C11
3068	D6
3069	E6
3071	G2
3360	E11
3361	E11
3362	E11
3363	E11
3364	E11
3365	E11
3366	E9
3367	E9
3368	F9
3369	F9
3373	F9
3378	G5
3380	F4
3381	F4
3382	G4
3383	G4
3386	F5
3560	D6
3561	D6
3562	D5
3563	D5
3564	D5
3565	D4
3566	D4
4009	E2
4010	E2
4011	F2
4012	F2
4015	D7
4016	D11
4360	G8
4361	G8
4362	G8
4363	G8
4568	E5
5360	E9
5560	B5
6020	A8
6021	C11
6563	D5
6564	D5
7012	A5
7013	A5
7014	A6
7015	C8
7016	A8
7017	A10
7018	B7
7019	C10
7068	D5
7360	E10
7372-1	G6
7372-2	F6
7376-A	G4
7376-B	G4
7377-A	F4
7377-B	F4
7560	C4
7562	B5
7563	D4
F001	D5
F018	C6
F024	A2
F025	A2
F026	A2
F027	A2
F028	A2
F029	A2
F030	B2
F031	B2
F032	B2
F033	B2
F034	B2
F035	B2
F036	B2
F037	C2
F038	C2
F039	C2
F040	C2
F041	C2
F042	C2
F043	C1
F044	C2
F045	C2
F046	C2
F047	D2
F048	D1
F049	D2
F050	D2
F051	D2
F052	D2
F053	D2
F055	C1
F056	D2
F057	D2
F058	E1
F059	D7
F060	E1
F061	E1
F062	E1
F063	E1
F064	D2
F067	F1
F068	F1
F069	F1
F070	D7
F071	F1
F072	G1
F073	F2
F075	G1
F076	F1
F090	G1
F093	G1
F094	G1
F095	G1
F096	G1
F097	E1
I060	B3
I070	E9
I073	F4
I074	G4
I075	E9
I076	E9
I078	F9
I079	E8
I080	E8
I081	E8
I082	F10
I083	F9
I084	F11
I085	F11
I086	F10
I087	A5
I089	A7
I091	G10
I092	F9
I094	A7
I095	F4
I096	A8
I097	A9
I098	A10
I099	B9
I340	B11
I341	B11
I342	C8
I343	C9
I344	D9
I345	C10
I346	C10
I347	C11
I357	E6
I358	D5

TV & Scaler Board: Audio Amplifier


A5 AUDIO AMPLIFIER
AUDOUTLSL
F701
SC2_L_MON_OUT
SC2_R_MON_OUT
AUDOUTLSR
F702
For ITV Only
3703 10K
3705 RES
2702 1u0
HPIC_LIN
2704 1u0
3708 33K
2706 1u0
3709 33K
3710 33K
2705 1u0
4701
4702
3712 10K
2708 1u0
HPIC_RIN
3713 RES
3714 12K
2712 1u0
3715 1K8
* AV BUNDLE
7707 TDA1517ATW
POWER AMPLIFIER
IN1+
IN2-
MODE
SVRR
OUT1A
OUT1B
OUT2A
OUT2B
NC
SGND
PGND
HS
P-GND
HPIC_LOUT
HPIC_ROUT
4704_RES
4705_RES
2701 100n
1701 4R8
*EMC 2739 470p
*EMC 2740 470p
2716 10u 16V
3720 10K
2709 100u 16V
F713
ITV 1W BATHROOM AMP
*EMC 2741 470p
HPIC_LIN
HPIC_RIN
HEADPHONE AMP
+3V3STBY
2743 1u0
3740 22K
3741 100K
3739 22K
2744 1u0
3745 100K
2745 100u 16V
3743 22K
3742 22K
7740-1 TS482IDT
7740-2 TS482IDT
HPIC_ROUT
HPIC_LOUT
2707 470u 16V
3711 0R
**4706
2710 470p
HP_ROUT A3
2715 470u 16V
3718 0R
**4707
2711 470p
HP_LOUT A3
For ITV Only
+3V3STBY
AUD-SUP
3719 10K
3717 10K
7702-2 BC847BS
3725 10K
3722 8K2
7702-1 BC847BS
AUD-SUP
3747 100K
7703-2 BC847BS
3749 10K
3748 10K
7703-1 BC847BS
3746 100K
3706 10K
3750 68K
2703 10u 16V
F715
F714
STANDBY
HP_DET_IN
4703
AUDOUTLSL
HP_DET_R_DC
SOUND_ENABLE
POWER_DOWN
4708
4709
F711
3726 12K
2718 1u0
3727 1K8
*EMC 2742 470p
AUD-SUP
2713 100n
2719 100n
2714 470u 16V
7709 TDA7297D
VCC
IN1
IN2
ST_BY
MUTE
SGND
PW GND
OUT1+
OUT1-
OUT2+
OUT2-
NC
MAIN AMP
3744 10K
3751 68K
2746 10V 1u0
1704
F705
F706
F707
F708
8 OHMS/5W
R
L
*EMC 3735 2R2
*EMC 3736 2R2
*EMC 3737 2R2
*EMC 3738 2R2
*EMC 2735 1n0
*EMC 2736 1n0
*EMC 2737 1n0
*EMC 2738 1n0
HP_LOUT
P-GND
7706-1 74HC08PW
7706-2 74HC08PW
7706-3 74HC08PW
7706-4 74HC08PW
MUTE
ST_BY
EXT_MUTE
F712
AUD-SUP
3730 10K
3731 470R
3732 1K0
3733 470R
7710 BC847BW
7708-1 PUMH7
7708-2 PUMH7
HP_ROUT
F701 20mV / div AC 1ms / div
F702 20mV / div AC 1ms / div
F705 50mV / div AC 1ms / div
F706 50mV / div AC 1ms / div
F707 50mV / div AC 1ms / div
F708 50mV / div AC 1ms / div
F710
OUT_MUTE
A2 / A3
3139 123 5804.2
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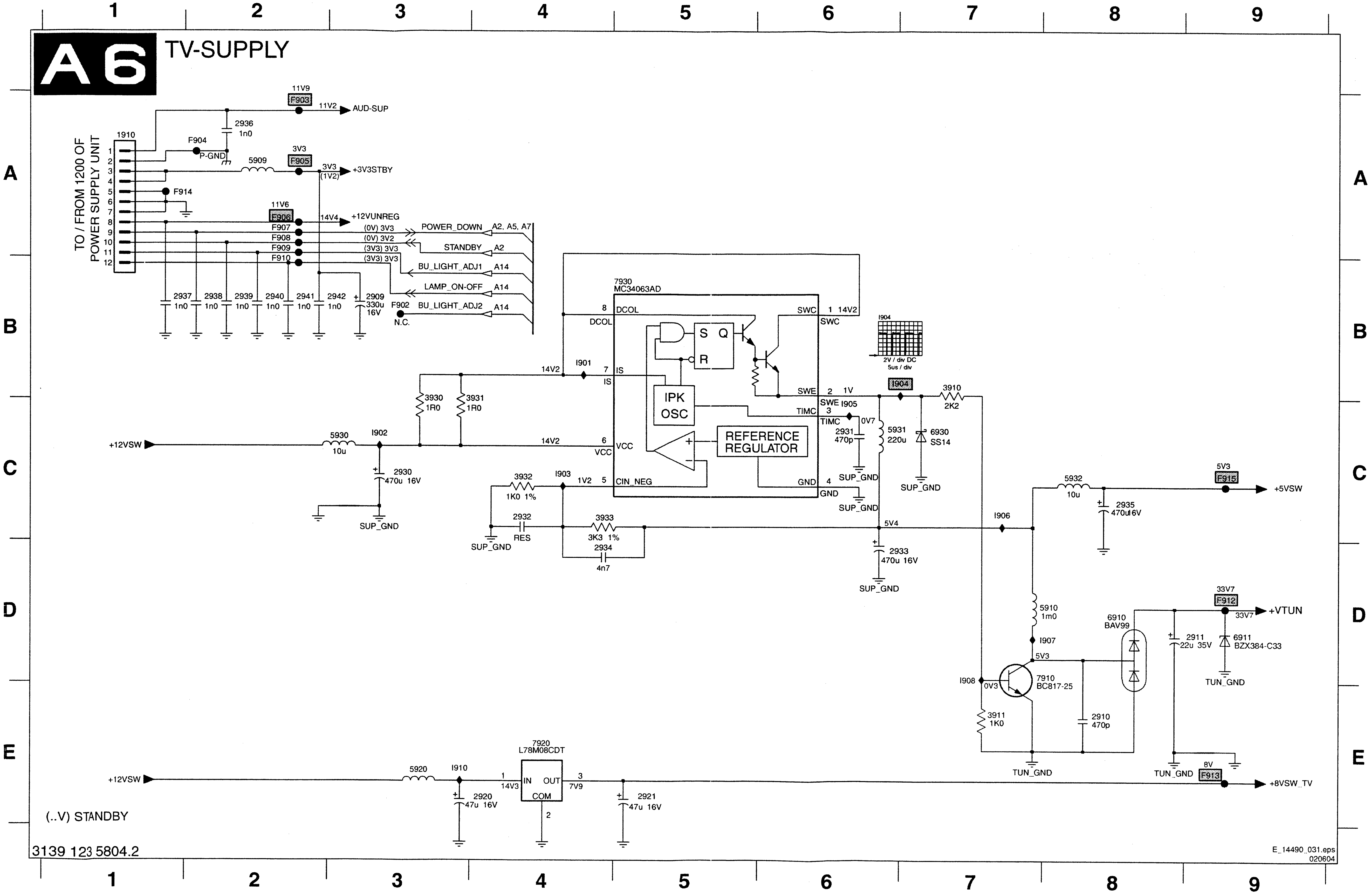
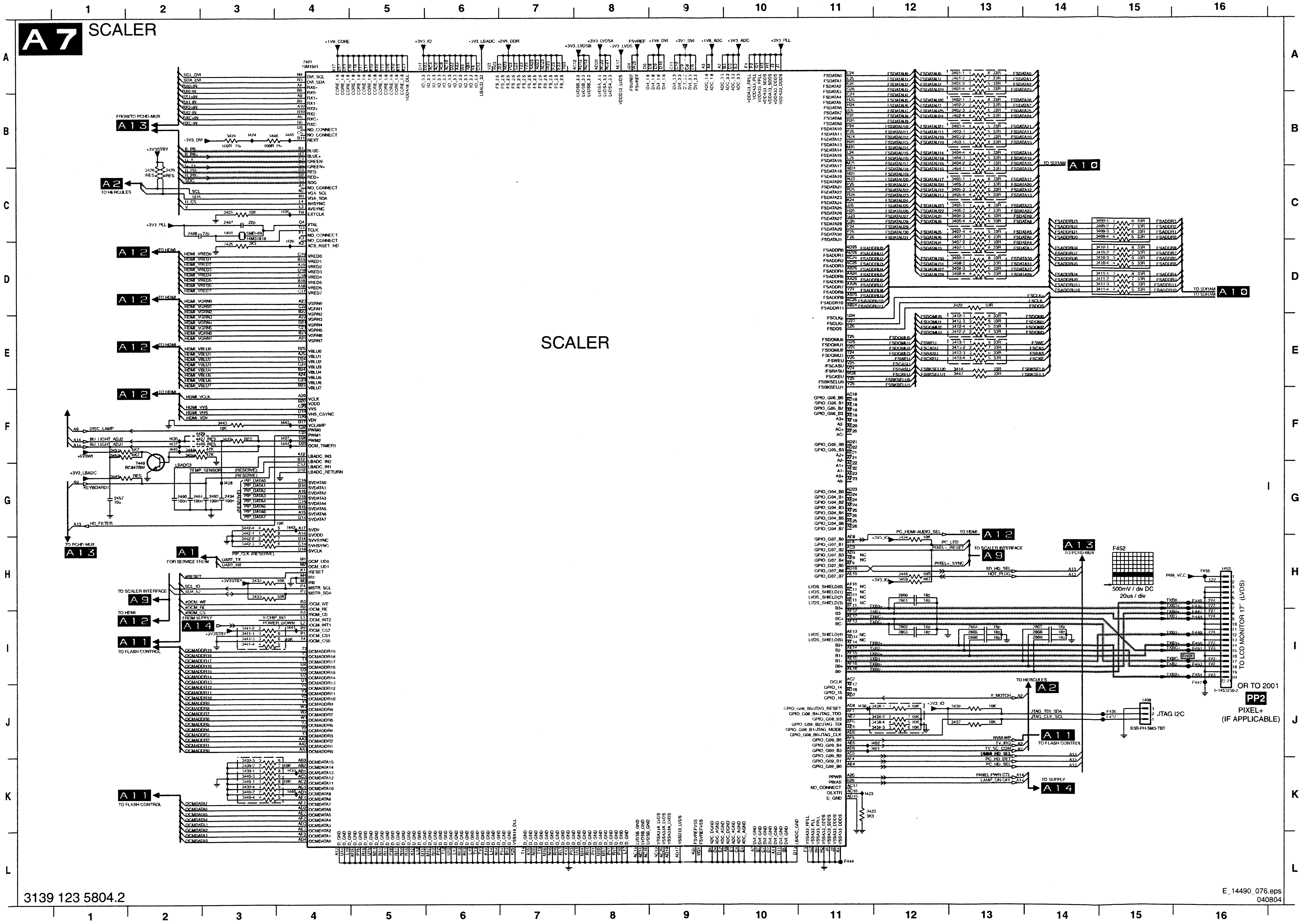
1701	A6
1704	D9
2701	A6
2702	A4
2703	D5
2704	A2
2705	B3
2706	B2
2707	B7
2708	B3
2709	B5
2710	C8
2711	D8
2712	C3
2713	C6
2714	C7
2715	C7
2716	B4
2718	D4
2719	C6
2735	E8
2736	E9
2737	E9
2738	E9
2739	A4
2740	A5
2741	C5
2742	D5
2743	A8
2744	A8
2745	A8
2746	E6
3703	A3
3705	A3
3706	D5
3708	A2
3709	B2
3710	B3
3711	B8
3712	B3
3713	B3
3714	C3
3715	C3
3717	C2
3718	C8
3719	C1
3720	B5
3722	C2
3725	C2
3726	D4
3727	D4
3730	F4
3731	F4
3732	F3
3733	F3
3735	E8
3736	E9
3737	E9
3738	E9
3739	A8
3740	A8
3741	A8
3742	B9
3743	B8
3744	E5
3745	A8
3746	C5
3747	D3
3748	D4
3749	D3
3750	D5
3751	E5
4701	A4
4702	B4
4703	D2
4704	A5
4705	A5
4706	B8
4707	C8
4708	E1
4709	E2
7702-1	D2
7702-2	D2
7703-1	D4
7703-2	D3
7706-1	E2
7706-2	E2
7706-3	F2
7706-4	F2
7707	A5
7708-1	F5
7708-2	F5
7709	D6
7710	F4
7740-1	A9
7740-2	B9
F701	A1
F702	B1
F705	D9
F706	D9
F707	D9
F708	E9
F710	F9
F711	E1
F712	F1
F713	B6
F714	D4
F715	D3
I701	A3
I702	A5
I703	A5
I704	B4
I705	A2
I706	A2
I707	B2
I709	C3
I710	B5
I711	B5
I712	C5
I713	D5
I714	D3
I715	D1
I716	D2
I717	D2
I718	D4
I719	D4
I720	C2
I721	F4
I723	D5
I724	A7
I725	A7
I726	B8
I727	C8
I728	E6
I729	D4
I730	A6
I731	A8
I732	A8
I737	A8
I738	E8
I739	E9
I740	E9
I741	E9

TV & Scaler Board: TV-Supply


A6
TV-SUPPLY
1 2 3 4 5 6 7 8 9
A B C D E
TO / FROM 1200 OF POWER SUPPLY UNIT
1910
1 2 3 4 5 6 7 8 9 10 11 12
F903
11V9
11V2
AUD-SUP
2936 1n0
F904
P-GND
5909
3V3
F905
3V3 (1V2)
+3V3STBY
F914
11V6
F906
14V4
+12VUNREG
F907
F908
F909
F910
(0V) 3V3
(0V) 3V2
(3V3) 3V3
(3V3) 3V3
POWER_DOWN A2, A5, A7
STANDBY A2
BU_LIGHT_ADJ1 A14
LAMP_ON-OFF A14
BU_LIGHT_ADJ2 A14
2937 1n0
2938 1n0
2939 1n0
2940 1n0
2941 1n0
2942 1n0
2909 330u 16V
F902 N.C.
7930 MC34063AD
8 DCOL
1 14V2 SWC
7 IS
14V2
I901
S Q R
IPK OSC
REFERENCE REGULATOR
SWE 2 1V
SWE I905 3
TIMC
TIMC 0V7
6 VCC
5 CIN_NEG
4 GND
I904
2V / div DC 5us / div
3910 2K2
2931 470p
5931 220u
6930 SS14
SUP_GND
3930 1R0
3931 1R0
+12VSW
5930 10u
I902
2930 470u 16V
SUP_GND
3932 1K0 1%
I903
1V2
2932 RES
3933 3K3 1%
2934 4n7
SUP_GND
5V4
2933 470u 16V
SUP_GND
I906
5932 10u
2935 470u16V
5V3
F915
+5VSW
5910 1m0
I907
5V3
I908
0V3
7910 BC817-25
3911 1K0
2910 470p
6910 BAV99
2911 22u 35V
33V7
F912
33V7
+VTUN
6911 BZX384-C33
TUN_GND
TUN_GND
TUN_GND
+12VSW
5920
I910
7920 L78M08CDT
1 14V3 IN OUT 3 7V9
COM 2
2920 47u 16V
2921 47u 16V
8V
F913
+8VSW_TV
(..V) STANDBY
3139 123 5804.2
E_14490_031.eps 020604

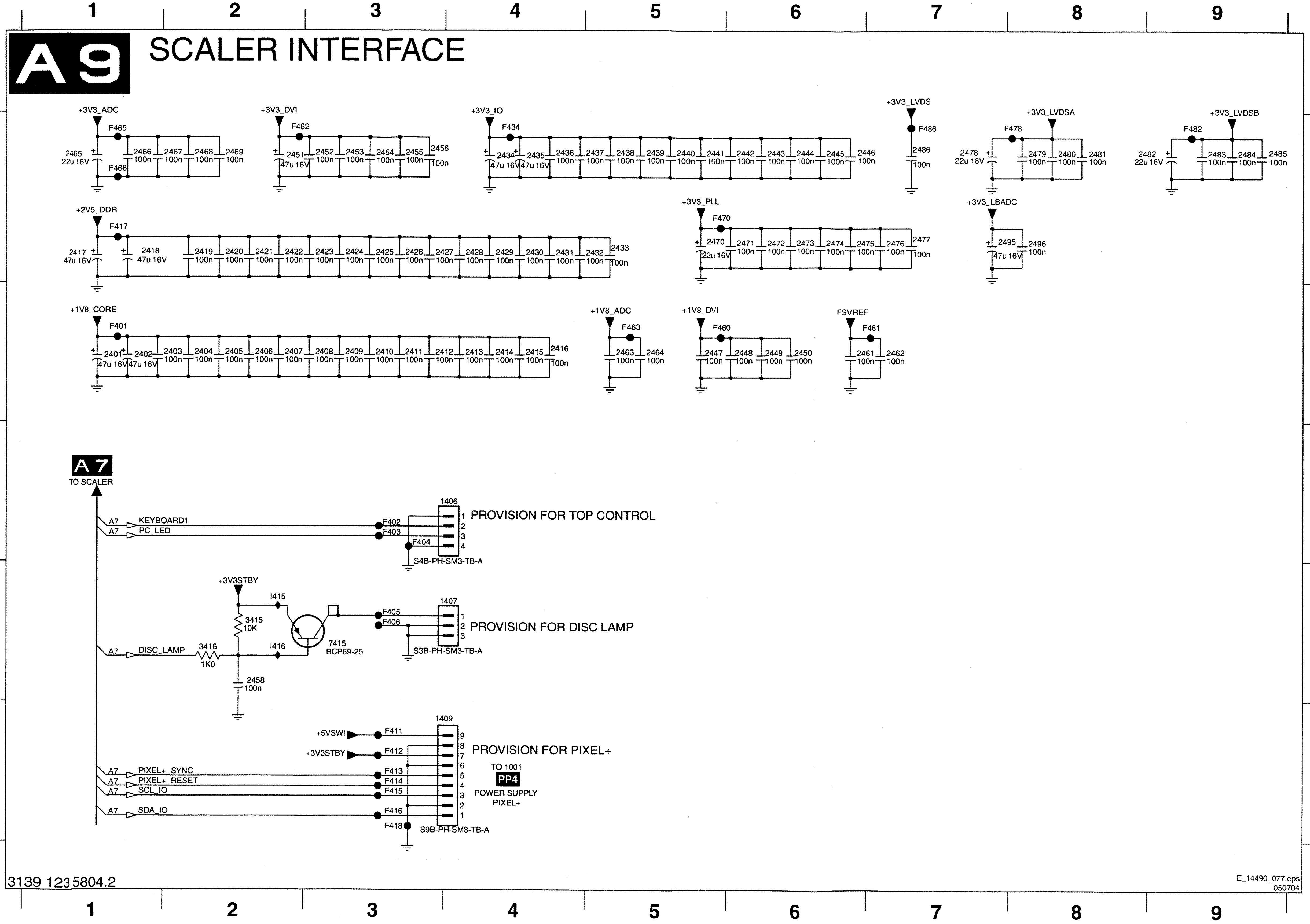
1910	A1
2909	B3
2910	E8
2911	D9
2920	E4
2921	E5
2930	C3
2931	C6
2932	C4
2933	D6
2934	D4
2935	C8
2936	A2
2937	B1
2938	B2
2939	B2
2940	B2
2941	B2
2942	B3
3910	B7
3911	E7
3930	B3
3931	B4
3932	C4
3933	C4
5909	A2
5910	D8
5920	E3
5930	C3
5931	C6
5932	C8
6910	D8
6911	D9
6930	C7
7910	D7
7920	E4
7930	B5
F902	B3
F903	A2
F904	A2
F905	A2
F906	A2
F907	A2
F908	A2
F909	A2
F910	B2
F912	D9
F913	E9
F914	A1
F915	C9
I901	B4
I902	C3
I903	C4
I904	B7
I905	C6
I906	C7
I907	D8
I908	D7
I910	E3

TV & Scaler Board: Scaler


A7
SCALER
7401
GM1501
FROM/TO PCHD-MUX
A13
A2
TO HERCULES
A12
TO HDMI
A9
TO SCALER INTERFACE
A14
FROM SUPPLY
A11
TO FLASH CONTROL
A1
FOR SERVICE FROM
TO PCHD-MUX
A10
TO SDRAM
TO HDMI
TO SCALER INTERFACE
A13
TO PCHD-MUX
F452
500mV / div DC
20us / div
TO LCD MONITOR 17" (LVDS)
OR TO 2001
PP2
PIXEL+
(IF APPLICABLE)
JTAG I2C
B3B-PH-SM3-TBT
TO HERCULES
TO FLASH CONTROL
TO SUPPLY
3139 123 5804.2
E_14490_076.eps
040804

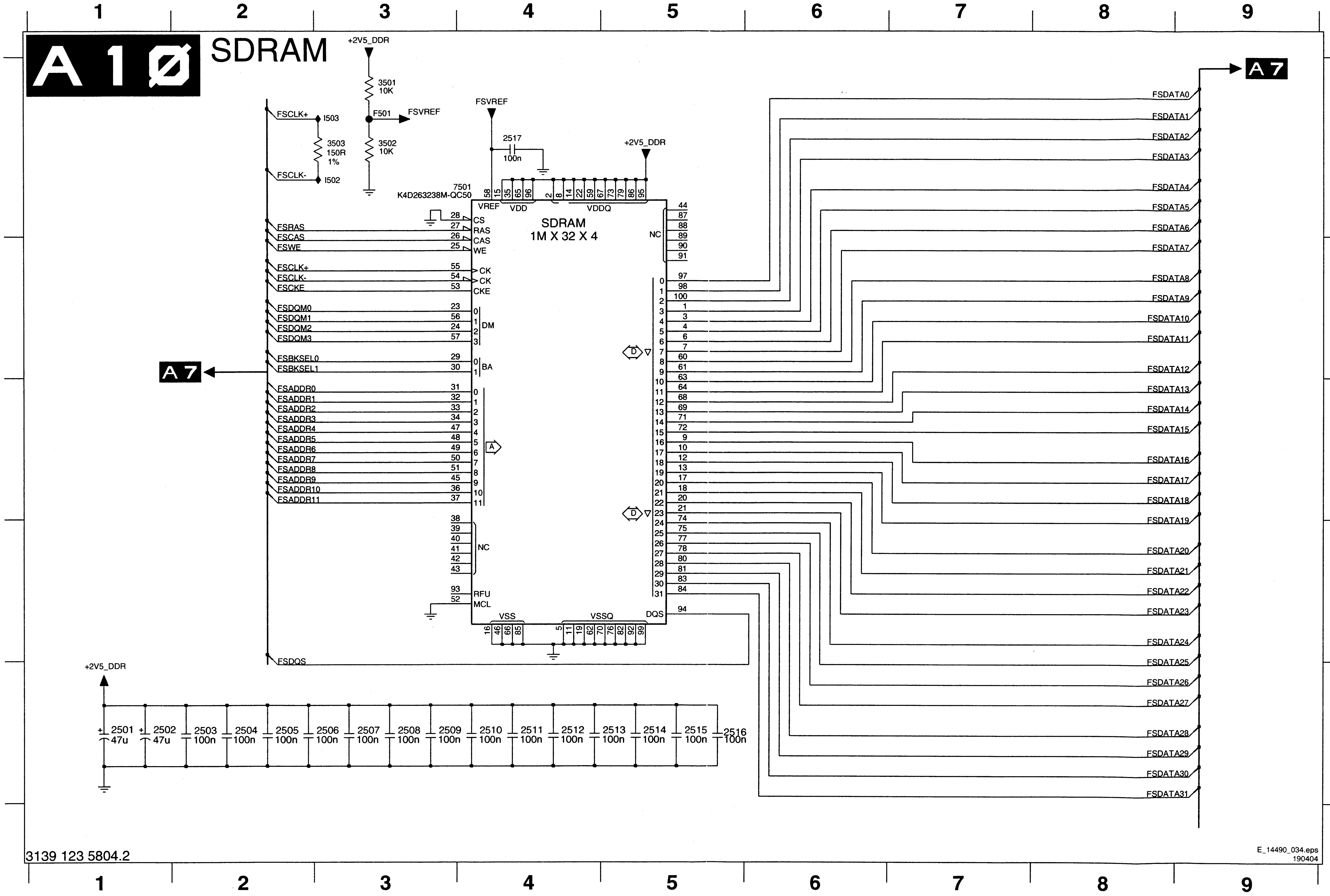
1401	C3
1403	H16
1408	J15
2457	G1
2487	C3
2488	C2
2490	G2
2491	G2
2492	G3
2494	G3
2860	H12
2861	H12
2862	I12
2863	I12
2864	I13
2865	I13
2866	I13
2867	I14
2868	I14
2869	I14
3401-1	A13
3401-2	A13
3401-3	A13
3401-4	A13
3402-1	B13
3402-2	B13
3402-3	B13
3402-4	B13
3403-1	B13
3403-2	B13
3403-3	B13
3403-4	B13
3404-1	C13
3404-2	B13
3404-3	B13
3404-4	B13
3405-1	C13
3405-2	C13
3405-3	C13
3405-4	C13
3406-1	C13
3406-2	C13
3406-3	C13
3406-4	C13
3407-1	D13
3407-2	D13
3407-3	C13
3407-4	C13
3408-1	D13
3408-2	D13
3408-3	D13
3408-4	D13
3409-1	C15
3409-2	C15
3409-3	C15
3409-4	C15
3410-1	D15
3410-2	D15
3410-3	D15
3410-4	D15
3411-1	D15
3411-2	D15
3411-3	D15
3411-4	D15
3412-1	E13
3412-2	E13
3412-3	E13
3412-4	E13
3413-1	E13
3413-2	E13
3413-3	E13
3413-4	E13
3414	E13
3422	D13
3423	K11
3424	B3
3425	C3
3426	D3
3427	F3
3428	C2
3429	C2
3432	H3
3433	H3
3434	H12
3436	J13
3437	J13
3438-1	J12
3438-2	J12
3438-3	J12
3438-4	J12
3439-1	K3
3439-2	K3
3439-3	K3
3439-4	K3
3440-1	K3
3440-2	K3
3440-3	K3
3440-4	K3
3441-1	I3
3441-2	I3
3441-3	I3
3441-4	I3
3442-1	G3
3442-2	H3
3442-3	H3
3442-4	G3
3443	F3
3444	F2
3445	G1
3446	B3
3447	E13
3448	H12
3450	F2
3451	F1
3452	F1
3459	H12
4427	F2
4428	F2
4445	F2
7401	A4
7449	G2
F436	J15
F437	J15
F442	J16
F444	L11
F445	H16
F446	H16
F447	I16
F448	I16
F449	I16
F450	I16
F451	I16
F452	I16
F453	I16
F454	I16
F455	H16
I423	K11
I424	B3
I425	C4
I426	C4
I427	F4
I428	G3
I436	F2
I437	F2
I438	J11
I439	K4
I440	K4
I441	I4
I442	G4
I443	F4
I444	F4
I445	F2
I446	B4

TV & Scaler Board: Scaler Interface


A9
SCALER INTERFACE
+3V3_ADC
F465
F466
2465 22u 16V
2466 100n
2467 100n
2468 100n
2469 100n
+3V3_DVI
F462
2451 47u 16V
2452 100n
2453 100n
2454 100n
2455 100n
2456 100n
+3V3_IO
F434
2434 47u 16V
2435 47u 16V
2436 100n
2437 100n
2438 100n
2439 100n
2440 100n
2441 100n
2442 100n
2443 100n
2444 100n
2445 100n
2446 100n
+3V3_LVDS
F486
2486 100n
+3V3_LVDSA
F478
2478 22u 16V
2479 100n
2480 100n
2481 100n
+3V3_LVDSB
F482
2482 22u 16V
2483 100n
2484 100n
2485 100n
+2V5_DDR
F417
2417 47u 16V
2418 47u 16V
2419 100n
2420 100n
2421 100n
2422 100n
2423 100n
2424 100n
2425 100n
2426 100n
2427 100n
2428 100n
2429 100n
2430 100n
2431 100n
2432 100n
2433 100n
+3V3_PLL
F470
2470 22u 16V
2471 100n
2472 100n
2473 100n
2474 100n
2475 100n
2476 100n
2477 100n
+3V3_LBADC
2495 47u 16V
2496 100n
+1V8_CORE
F401
2401 47u 16V
2402 47u 16V
2403 100n
2404 100n
2405 100n
2406 100n
2407 100n
2408 100n
2409 100n
2410 100n
2411 100n
2412 100n
2413 100n
2414 100n
2415 100n
2416 100n
+1V8_ADC
F463
2463 100n
2464 100n
+1V8_DVI
F460
2447 100n
2448 100n
2449 100n
2450 100n
FSVREF
F461
2461 100n
2462 100n
A7
TO SCALER
KEYBOARD1
PC_LED
F402
F403
F404
1406
PROVISION FOR TOP CONTROL
S4B-PH-SM3-TB-A
+3V3STBY
I415
3415 10K
I416
7415 BCP69-25
DISC_LAMP
3416 1K0
2458 100n
F405
F406
1407
PROVISION FOR DISC LAMP
S3B-PH-SM3-TB-A
+5VSWI
F411
+3V3STBY
F412
1409
PROVISION FOR PIXEL+
TO 1001
PP4
POWER SUPPLY PIXEL+
PIXEL+_SYNC
PIXEL+_RESET
SCL_IO
SDA_IO
F413
F414
F415
F416
F418
S9B-PH-SM3-TB-A
3139 123 5804.2
E_14490_077.eps 050704

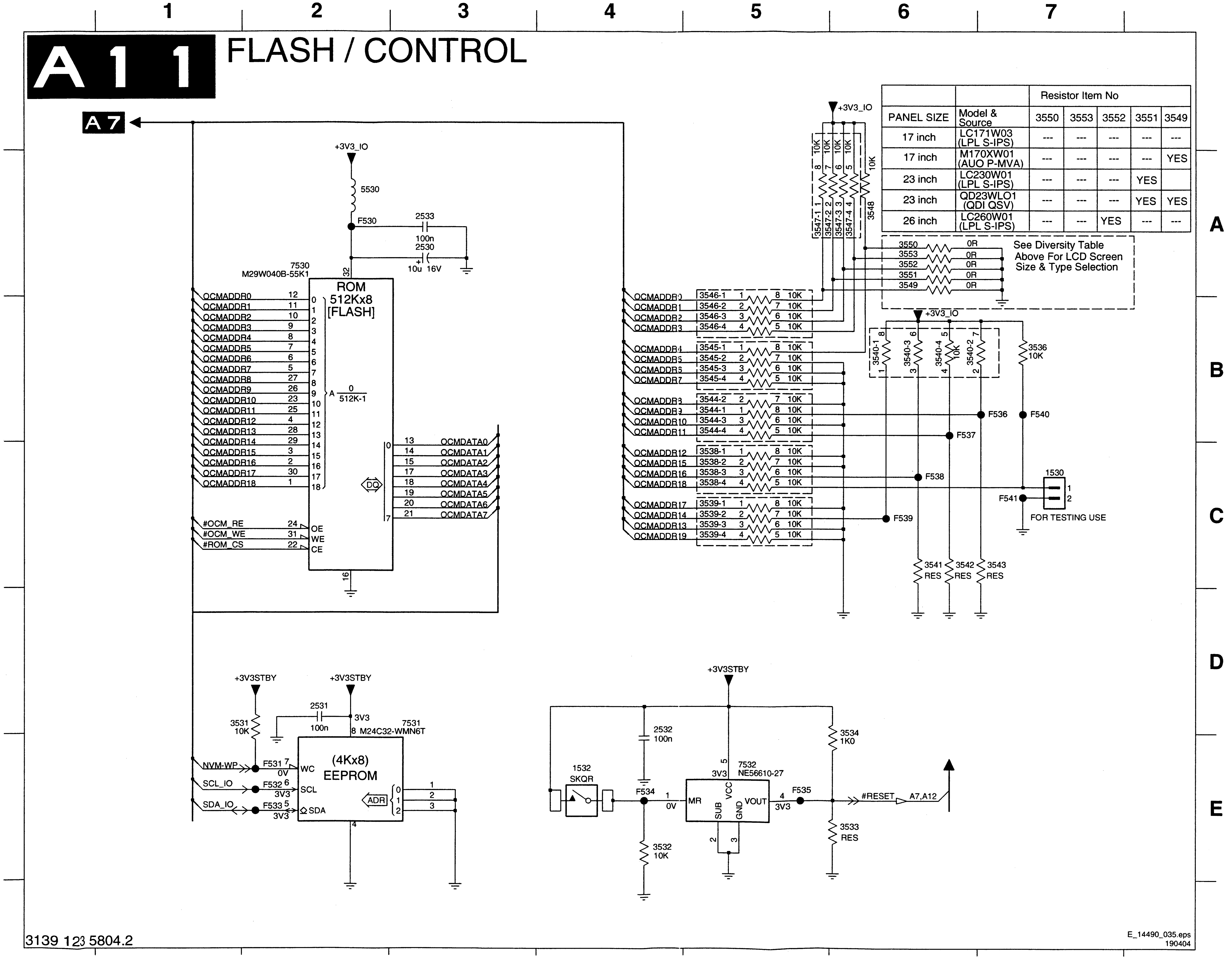
1406	C4
1407	D4
1409	E4
2401	B1
2402	B1
2403	B2
2404	B2
2405	B2
2406	B2
2407	B2
2408	B3
2409	B3
2410	B3
2411	B3
2412	B3
2413	B4
2414	B4
2415	B4
2416	B4
2417	A1
2418	A1
2419	A2
2420	A2
2421	A2
2422	A2
2423	A3
2424	A3
2425	A3
2426	A3
2427	A3
2428	A4
2429	A4
2430	A4
2431	A4
2432	A5
2433	A5
2434	A4
2435	A4
2436	A4
2437	A5
2438	A5
2439	A5
2440	A5
2441	A5
2442	A6
2443	A6
2444	A6
2445	A6
2446	A7
2447	B5
2448	B6
2449	B6
2450	B6
2451	A2
2452	A3
2453	A3
2454	A3
2455	A3
2456	A3
2458	D2
2461	B6
2462	B7
2463	B5
2464	B5
2465	A1
2466	A1
2467	A2
2468	A2
2469	A2
2470	A5
2471	A6
2472	A6
2473	A6
2474	A6
2475	A6
2476	A7
2477	A7
2478	A7
2479	A8
2480	A8
2481	A8
2482	A9
2483	A9
2484	A9
2485	A9
2486	A7
2495	A7
2496	A8
3415	D2
3416	D2
7415	D3
F401	B1
F402	C3
F403	C3
F404	C3
F405	D3
F406	D3
F411	E3
F412	E3
F413	E3
F414	E3
F415	E3
F416	E3
F417	A1
F418	E3
F434	A4
F460	B5
F461	B7
F462	A2
F463	B5
F465	A1
F466	A1
F470	A5
F478	A8
F482	A9
F486	A7
I415	D2
I416	D2

TV & Scaler Board: SDRAM


A10
SDRAM
+2V5_DDR
3501 10K
F501
FSVREF
3502 10K
3503 150R 1%
FSCLK+
I503
FSCLK-
I502
FSVREF
2517 100n
+2V5_DDR
7501
K4D263238M-QC50
VREF
VDD
VDDQ
SDRAM
1M X 32 X 4
NC
CS
RAS
CAS
WE
CK
CK
CKE
DM
BA
A
D
NC
RFU
MCL
VSS
VSSQ
DQS
FSRAS
FSCAS
FSWE
FSCLK+
FSCLK-
FSCKE
FSDQM0
FSDQM1
FSDQM2
FSDQM3
FSBKSEL0
FSBKSEL1
A7
FSADDR0
FSADDR1
FSADDR2
FSADDR3
FSADDR4
FSADDR5
FSADDR6
FSADDR7
FSADDR8
FSADDR9
FSADDR10
FSADDR11
FSDQS
FSDATA0
FSDATA1
FSDATA2
FSDATA3
FSDATA4
FSDATA5
FSDATA6
FSDATA7
FSDATA8
FSDATA9
FSDATA10
FSDATA11
FSDATA12
FSDATA13
FSDATA14
FSDATA15
FSDATA16
FSDATA17
FSDATA18
FSDATA19
FSDATA20
FSDATA21
FSDATA22
FSDATA23
FSDATA24
FSDATA25
FSDATA26
FSDATA27
FSDATA28
FSDATA29
FSDATA30
FSDATA31
A7
+2V5_DDR
2501 47u
2502 47u
2503 100n
2504 100n
2505 100n
2506 100n
2507 100n
2508 100n
2509 100n
2510 100n
2511 100n
2512 100n
2513 100n
2514 100n
2515 100n
2516 100n
1 2 3 4 5 6 7 8 9
A B C D E
3139 123 5804.2
E_14490_034.eps
190404

2501	E
2502	E
2503	E
2504	E
2505	E
2506	E
2507	E
2508	E
2509	E
2510	E
2511	E
2512	E
2513	E
2514	E
2515	E
2516	E
2517	A
3501	A
3502	A
3503	A
7501	A
F501	A
I502	A3
I503	A3

TV & Scaler Board: Flash / Control

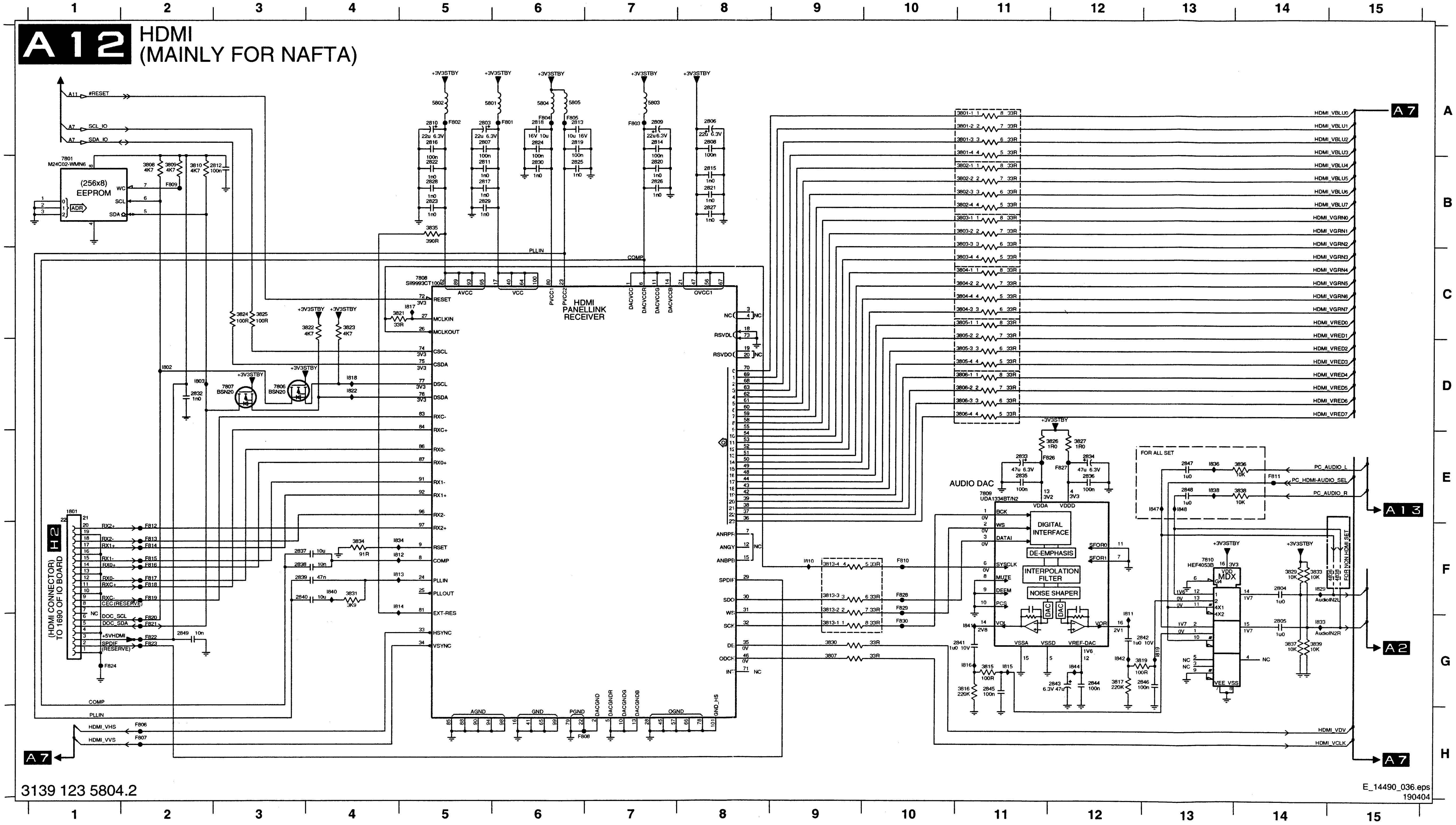

A11 FLASH / CONTROL
1 2 3 4 5 6 7
A B C D E
A7
+3V3_IO
5530
F530
2533
100n
2530
10u 16V
7530
M29W040B-55K1
ROM
512Kx8
[FLASH]
OCMADDR0 … OCMADDR18
OCMDATA0 … OCMDATA7
#OCM_RE
#OCM_WE
#ROM_CS
OE
WE
CE
DQ
512K-1
3546-1 … 3546-4 10K
3545-1 … 3545-4 10K
3544-1 … 3544-4 10K
3538-1 … 3538-4 10K
3539-1 … 3539-4 10K
3547-1 … 3547-4 10K
3548 10K
3550 0R
3553 0R
3552 0R
3551 0R
3549 0R
See Diversity Table
Above For LCD Screen
Size & Type Selection
3540-1 3540-2 3540-3 3540-4 10K
3536 10K
F536
F537
F538
F539
F540
F541
1530
FOR TESTING USE
3541 RES
3542 RES
3543 RES
+3V3STBY
3531 10K
2531 100n
3V3
7531
M24C32-WMN6T
(4Kx8)
EEPROM
NVM-WP
SCL_IO
SDA_IO
F531
F532
F533
WC
SCL
SDA
ADR
0V
3V3
2532 100n
1532 SKQR
F534
7532
NE56610-27
MR
VCC
SUB
GND
VOUT
F535
3534 1K0
3533 RES
3532 10K
#RESET
A7,A12
3139 123 5804.2
E_14490_035.eps
190404

		Resistor Item No				
PANEL SIZE	Model & Source	3550	3553	3552	3551	3549
17 inch	LC171W03 (LPL S-IPS)	---	---	---	---	---
17 inch	M170XW01 (AUO P-MVA)	---	---	---	---	YES
23 inch	LC230W01 (LPL S-IPS)	---	---	---	YES	
23 inch	QD23WLO1 (QDI QSV)	---	---	---	YES	YES
26 inch	LC260W01 (LPL S-IPS)	---	---	YES	---	---

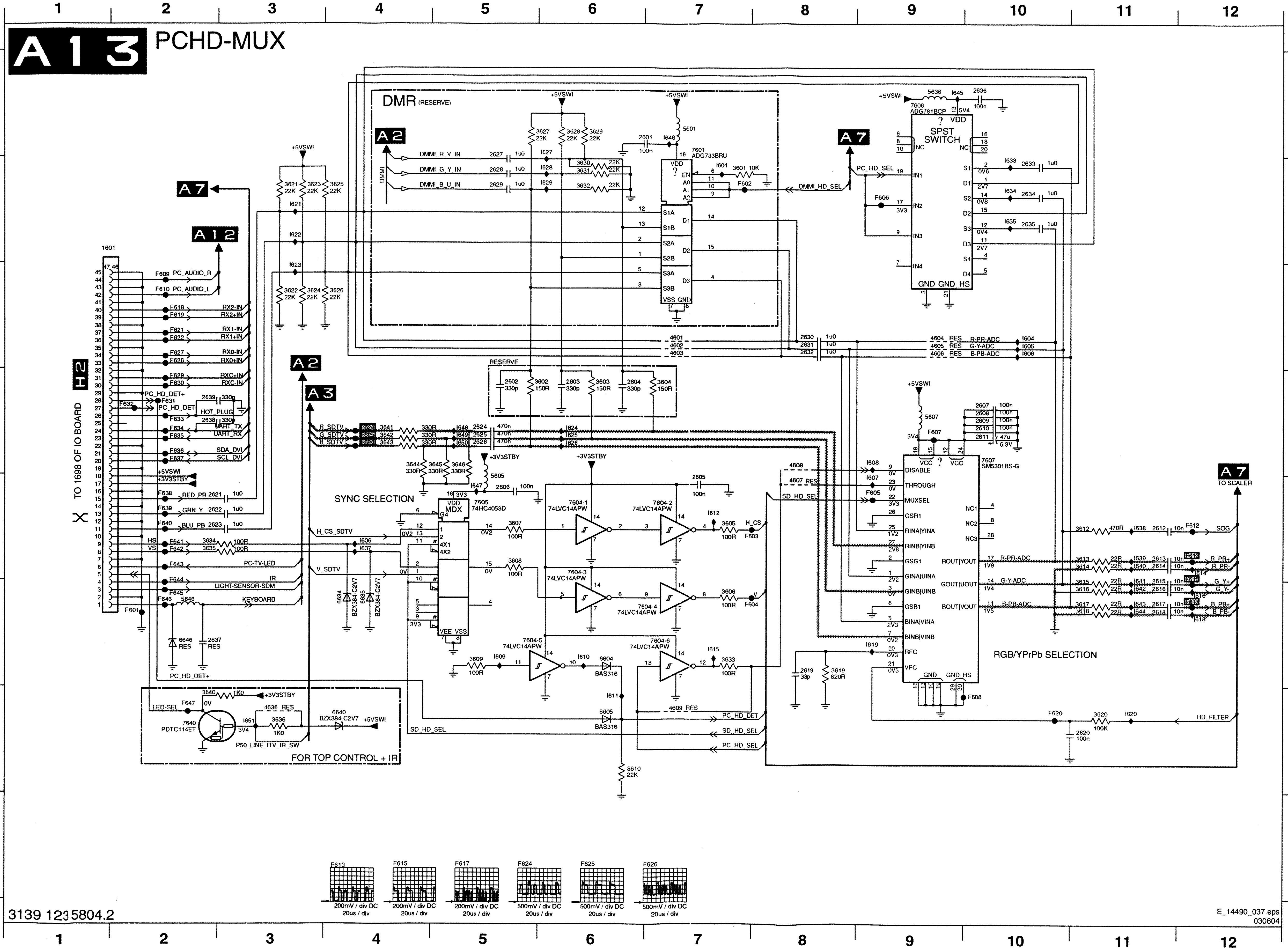
1530	C7
1532	E4
2530	A3
2531	D2
2532	D4
2533	A3
3531	D2
3532	E4
3533	E6
3534	D6
3536	B7
3538-1	C5
3538-2	C5
3538-3	C5
3538-4	C5
3539-1	C5
3539-2	C5
3539-3	C5
3539-4	C5
3540-1	B6
3540-2	B6
3540-3	B6
3540-4	B6
3541	C6
3542	C6
3543	C7
3544-1	B5
3544-2	B5
3544-3	B5
3544-4	B5
3545-1	B5
3545-2	B5
3545-3	B5
3545-4	B5
3546-1	B5
3546-2	B5
3546-3	B5
3546-4	B5
3547-1	A5
3547-2	A6
3547-3	A6
3547-4	A6
3548	A6
3549	A6
3550	A6
3551	A6
3552	A6
3553	A6
5530	A2
7530	A2
7531	D3
7532	E5
F530	A2
F531	E2
F532	E2
F533	E2
F534	E4
F535	E5
F536	B7
F537	B6
F538	C6
F539	C6
F540	B7
F541	C7

TV & Scaler Board: HDMI

1801 E1
2803 A5
2804 F14
2805 G14
2806 A8
2807 A5
2808 A8
2809 A7
2810 A5
2811 B5
2812 B3
2813 A6
2814 A7
2815 B8
2816 A5
2817 B5
2818 A6
2819 A6
2820 B7
2821 B8
2822 B5
2823 B5
2824 A6
2825 B6
2826 B7
2827 B8
2828 B5
2829 B5
2830 B6
2832 D2
2833 E11
2834 E12
2835 E11
2836 E12
2837 F3
2838 F3
2839 F3
2840 F3
2841 G11
2842 G13
2843 G12
2844 G12
2845 G11
2846 G13
2847 E13
2848 E13
2849 G2
3801-1 A11
3801-2 A11
3801-3 A11
3801-4 A11
3802-1 B11
3802-2 B11
3802-3 B11
3802-4 B11
3803-1 B11
3803-2 B11
3803-3 B11
3803-4 C11
3804-1 C11
3804-2 C11
3804-3 C11
3804-4 C11
3805-1 C11
3805-2 C11
3805-3 D11
3805-4 D11
3806-1 D11
3806-2 D11
3806-3 D11
3806-4 D11
3807 G9
3808 B2
3809 B2
3810 B2
3813-1 G9
3813-2 F9
3813-3 F9
3813-4 F9
3815 G11
3816 G11
3817 G12
3819 G12
3821 C4
3822 C4
3823 C4
3824 C3
3825 C3
3826 E12
3827 E12
3829 F14
3830 G9
3831 F4
3833 F14
3834 F4
3835 B5
3836 E14
3837 G14
3838 E14
3839 G14
4836 F15
4838 F15
5801 A5
5802 A5
5803 A7
5804 A6
5805 A6
7801 B1
7806 D3
7807 D3
7808 C5
7809 E11
7810 F13
F801 A6
F802 A5
F803 A7
F804 A6
F805 A6
F806 H2
F807 H2
F808 H6
F809 B2
F810 F10
F811 E14
F812 F2
F813 F2
F814 F2
F815 F2
F816 F2
F817 F2
F818 F2
F819 F2
F820 G2
F821 G2
F822 G2
F823 G2
F824 G1
F826 E11
F827 E12
F828 F10
F829 F10
F830 G10
I802 D2
I803 D2
I810 F9
I811 G12
I812 F4
I813 F4
I814 F4
I815 G11
I816 G11
I817 C5
I818 D4
I819 G13
I822 D4
I829 F14
I833 G14
I834 F4
I836 E13
I838 E13
I840 F4
I841 G11
I842 G12
I844 G12
I847 E13
I848 E13


A12
HDMI
(MAINLY FOR NAFTA)
A7
A13
A2
H2
(HDMI CONNECTOR) TO 1690 OF IO BOARD
+3V3STBY
#RESET
SCL_IO
SDA_IO
7801
M24C02-WMN6
(256x8) EEPROM
WC
SCL
SDA
ADR
7808
SII9993CT100
HDMI PANELLINK RECEIVER
AVCC
VCC
PVCC1
PVCC2
DACVCC
OVCC1
RESET
MCLKIN
MCLKOUT
CSCL
CSDA
DSCL
DSDA
RXC-
RXC+
RX0-
RX0+
RX1-
RX1+
RX2-
RX2+
RSET
COMP
PLLIN
PLLOUT
EXT-RES
HSYNC
VSYNC
AGND
GND
PGND
OGND
RSVDL
RSVDO
ANRPF
ANGY
ANBPB
SPDIF
SDO
WS
SCK
DE
ODCK
INT
NC
7806 BSN20
7807 BSN20
PLLIN
COMP
HDMI_VBLU0
HDMI_VBLU1
HDMI_VBLU2
HDMI_VBLU3
HDMI_VBLU4
HDMI_VBLU5
HDMI_VBLU6
HDMI_VBLU7
HDMI_VGRN0
HDMI_VGRN1
HDMI_VGRN2
HDMI_VGRN3
HDMI_VGRN4
HDMI_VGRN5
HDMI_VGRN6
HDMI_VGRN7
HDMI_VRED0
HDMI_VRED1
HDMI_VRED2
HDMI_VRED3
HDMI_VRED4
HDMI_VRED5
HDMI_VRED6
HDMI_VRED7
AUDIO DAC
7809
UDA1334BT/N2
BCK
WS
DATAI
SYSCLK
MUTE
DEEM
PCS
VOL
VDDA
VDDD
VSSA
VSSD
VREF-DAC
DIGITAL INTERFACE
DE-EMPHASIS
INTERPOLATION FILTER
NOISE SHAPER
DAC
SFOR0
SFOR1
FOR ALL SET
PC_AUDIO_L
PC_HDMI-AUDIO_SEL
PC_AUDIO_R
7810
HEF4053B
MDX
4X1
4X2
VEE
VSS
FOR NON HDMI SET
AudioIN2L
AudioIN2R
HDMI_VHS
HDMI_VVS
HDMI_VDV
HDMI_VCLK
RX2+
RX2-
RX1+
RX1-
RX0+
RX0-
RXC+
RXC-
CEC(RESERVE)
DOC_SCL
DOC_SDA
+5VHDMI
SPDIF (RESERVE)
3139 123 5804.2
E_14490_036.eps
190404
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H

TV & Scaler Board: PCHD-MUX

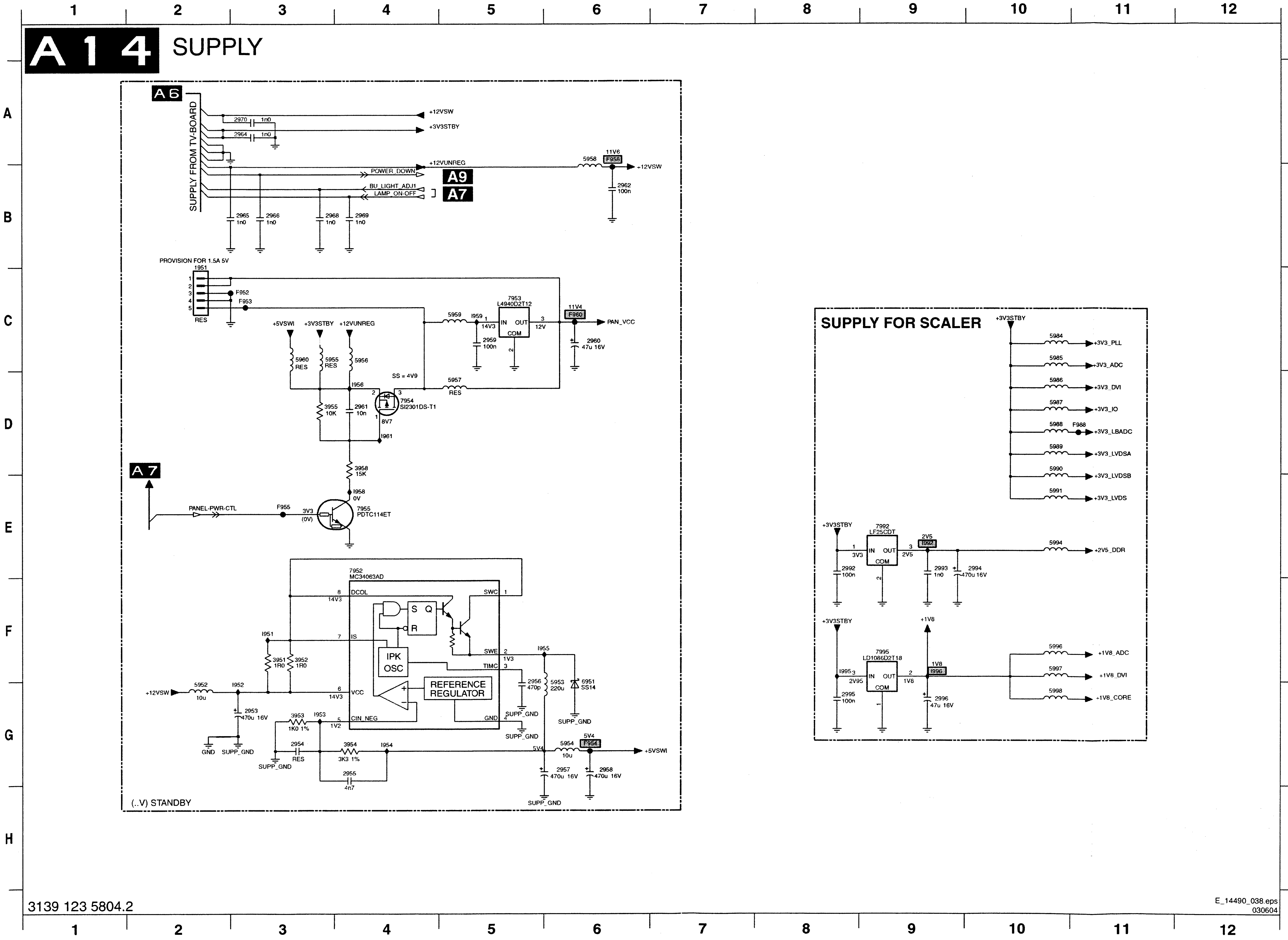

A13
PCHD-MUX
DMR (RESERVE)
DMMI
DMMI_R_V_IN
DMMI_G_Y_IN
DMMI_B_U_IN
DMMI_HD_SEL
PC_HD_SEL
7601 ADG733BRU
7606 ADG781BCP
SPST SWITCH
A2
A3
A7
A12
H2
TO 1698 OF IO BOARD
1601
PC_AUDIO_R
PC_AUDIO_L
RX2-IN
RX2+IN
RX1-IN
RX1+IN
RX0-IN
RX0+IN
RXC+IN
RXC-IN
PC_HD_DET+
PC_HD_DET-
HOT_PLUG
UART_TX
UART_RX
SDA_DVI
SCL_DVI
+5VSWI
+3V3STBY
RED_PR
GRN_Y
BLU_PB
HS
VS
PC-TV-LED
IR
LIGHT-SENSOR-SDM
KEYBOARD
RESERVE
R_SDTV
G_SDTV
B_SDTV
SYNC SELECTION
H_CS_SDTV
V_SDTV
7605 74HC4053D
MDX
7604-1 74LVC14APW
7604-2 74LVC14APW
7604-3 74LVC14APW
7604-4 74LVC14APW
7604-5 74LVC14APW
7604-6 74LVC14APW
H_CS
V
BAS316
PC_HD_DET
SD_HD_SEL
PC_HD_SEL
LED-SEL
7640 PDTC114ET
P50_LINE_ITV_IR_SW
BZX384-C2V7
FOR TOP CONTROL + IR
7607 SM5301BS-G
DISABLE
THROUGH
MUXSEL
RGB/YPrPb SELECTION
R-PR-ADC
G-Y-ADC
B-PB-ADC
SOG
R_PR+
R_PR-
G_Y+
G_Y-
B_PB+
B_PB-
A7 TO SCALER
HD_FILTER
F613
F615
F617
F624
F625
F626
200mV / div DC 20us / div
500mV / div DC 20us / div

3139 123 5804.2

E_14490_037.eps
030604

1601 B1
2601 A7
2602 D5
2603 D6
2604 D6
2605 E7
2606 E5
2607 D10
2608 D10
2609 D10
2610 D10
2611 D10
2612 E11
2613 E11
2614 E11
2615 F11
2616 F11
2617 F11
2618 F11
2619 F8
2620 G11
2621 E2
2622 E2
2623 E2
2624 D5
2625 D5
2626 D5
2627 A5
2628 B5
2629 B5
2630 C8
2631 C8
2632 C8
2633 B10
2634 B10
2635 B10
2636 A10
2637 F2
2638 D2
2639 D2
3601 B7
3602 D6
3603 D6
3604 D7
3605 E7
3606 F7
3607 E5
3608 E5
3609 F5
3610 G6
3612 E11
3613 E11
3614 E11
3615 F11
3616 F11
3617 F11
3618 F11
3619 F8
3620 G11
3621 B3
3622 C3
3623 B3
3624 C3
3625 B4
3626 C4
3627 A6
3628 A6
3629 A6
3630 B6
3631 B6
3632 B6
3633 F7
3634 E2
3635 E2
3636 G3
3640 G2
3641 D4
3642 D4
3643 D4
3644 D4
3645 D5
3646 D5
4601 C7
4602 C7
4603 C7
4604 C9
4605 C9
4606 C9
4607 E8
4608 D8
4609 G7
4636 G3
5601 A7
5605 E5
5607 D9
5636 A9
5646 F2
6604 F6
6605 G6
6634 F4
6635 F4
6640 G4
6646 F2
7601 A7
7604-1 E6
7604-2 E7
7604-3 E6
7604-4 F7
7604-5 F6
7604-6 F7
7605 E5
7606 A9
7607 D10
7640 G2
F601 F2
F602 B7
F603 E8
F604 F8
F605 E9
F606 B9
F607 D9
F608 G10
F609 C2
F610 C2
F612 E12
F613 E12
F615 E12
F617 F12
F618 C2
F619 C2
F620 G10
F621 C2
F622 C2
F624 D4
F625 D4
F626 D4
F627 C2
F628 C2
F629 D2
F630 D2
F631 D2
F632 D2
F633 D2
F634 D2
F635 D2
F636 D2
F637 D2
F638 E2
F639 E2
F640 E2
F641 E2
F642 E2
F643 E2
F644 F2
F645 F2
F646 F2
F647 G2
I601 B7
I604 C10
I605 C10
I606 C10
I607 E9
I608 D9
I609 F5
I610 F6
I611 G6
I612 E7
I614 E12
I615 F7
I616 F12
I618 F12
I619 F9
I620 G11
I621 B3
I622 B3
I623 C3
I624 D6
I625 D6
I626 D6
I627 A6
I628 B6
I629 B6
I633 B10
I634 B10
I635 B10
I636 E4
I637 E4
I638 E11
I639 E11
I640 E11
I641 E11
I642 F11
I643 F11
I644 F11
I645 A9
I646 A7
I647 E5
I648 D5
I649 D5
I650 D5
I651 G3

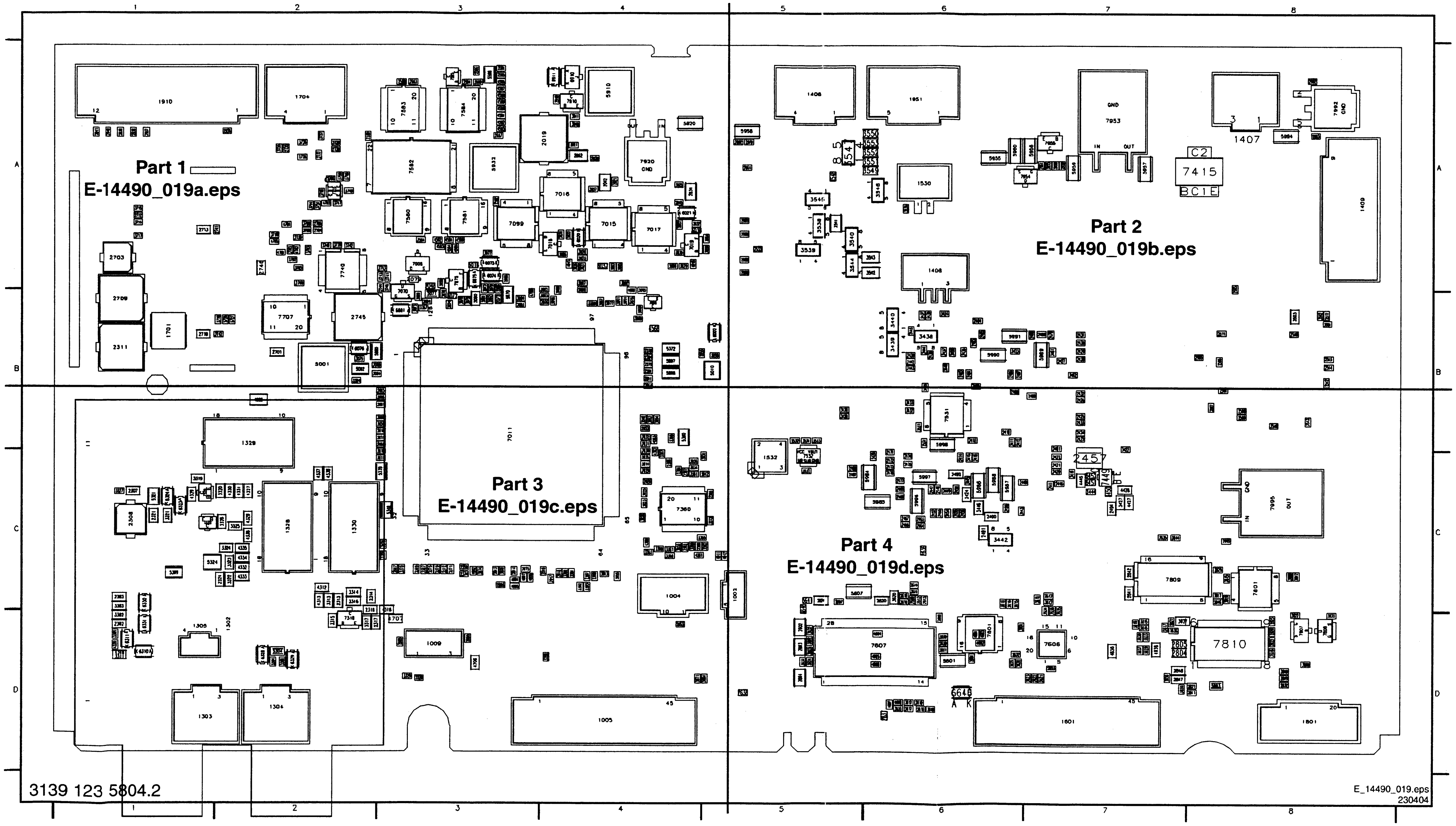
TV & Scaler Board: Supply


1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H
A 1 4 SUPPLY
A6
SUPPLY FROM TV-BOARD
2970 1n0
2964 1n0
+12VSW
+3V3STBY
+12VUNREG
POWER_DOWN
A9
BU_LIGHT_ADJ1
LAMP_ON-OFF
A7
2965 1n0
2966 1n0
2968 1n0
2969 1n0
5958
11V6
F958
+12VSW
2962 100n
PROVISION FOR 1.5A 5V
1951
RES
F952
F953
+5VSWI
+3V3STBY
+12VUNREG
5960 RES
5955 RES
5956
I956
SS = 4V9
3955 10K
2961 10n
7954 SI2301DS-T1
8V7
I961
5957 RES
5959
I959
14V3
7953 L4940D2T12
IN OUT COM
12V
2959 100n
11V4
F960
PAN_VCC
2960 47u 16V
A 7
PANEL-PWR-CTL
F955
3V3 (0V)
3958 15K
I958 0V
7955 PDTC114ET
7952 MC34063AD
DCOL
SWC
IS
SWE
TIMC
VCC
CIN_NEG
GND
IPK OSC
REFERENCE REGULATOR
S Q R
I951
3951 1R0
3952 1R0
+12VSW
5952 10u
I952
2953 470u 16V
GND
SUPP_GND
3953 1K0 1%
I953
1V2
2954 RES
3954 3K3 1%
I954
2955 4n7
I955
1V3
2956 470p
5953 220u
6951 SS14
5954 10u
5V4
F954
+5VSWI
2957 470u 16V
2958 470u 16V
(..V) STANDBY
SUPPLY FOR SCALER
+3V3STBY
5984 +3V3_PLL
5985 +3V3_ADC
5986 +3V3_DVI
5987 +3V3_IO
5988 F988 +3V3_LBADC
5989 +3V3_LVDSA
5990 +3V3_LVDSB
5991 +3V3_LVDS
7992 LF25CDT
3V3
2V5
I992
2992 100n
2993 1n0
2994 470u 16V
5994 +2V5_DDR
+1V8
7995 LD1086D2T18
I995
2V95
1V8
I996
2995 100n
2996 47u 16V
5996 +1V8_ADC
5997 +1V8_DVI
5998 +1V8_CORE
3139 123 5804.2
E_14490_038.eps
030604

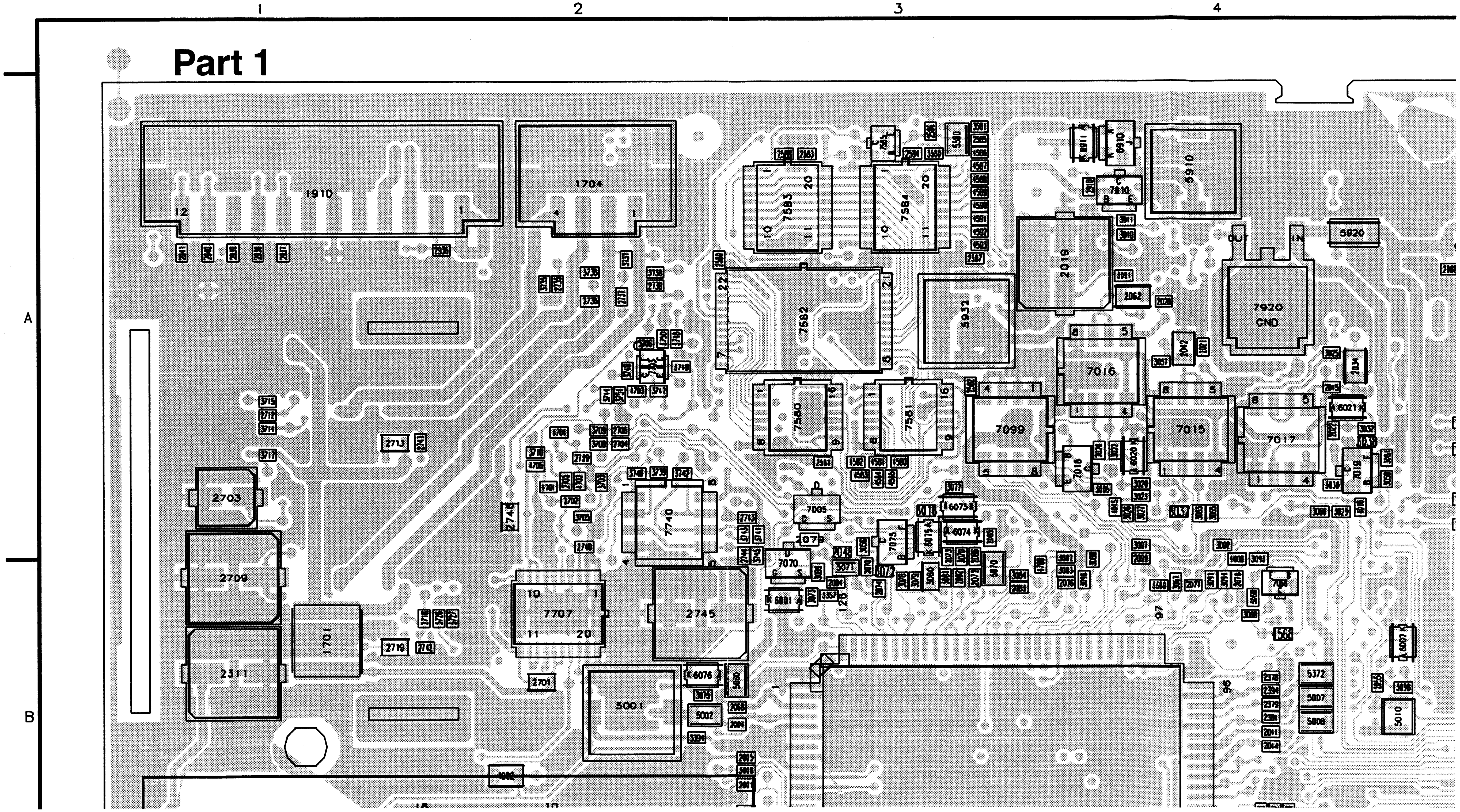
1951	C2
2953	G3
2954	G3
2955	G4
2956	F5
2957	G6
2958	G6
2959	C5
2960	C6
2961	D4
2962	B6
2964	A3
2965	B3
2966	B3
2968	B3
2969	B4
2970	A3
2992	E8
2993	E9
2994	E10
2995	G8
2996	G9
3951	F3
3952	F3
3953	G3
3954	G4
3955	D3
3958	D4
5952	G2
5953	G6
5954	G6
5955	C3
5956	C4
5957	D5
5958	A6
5959	C5
5960	C3
5984	C10
5985	C10
5986	D10
5987	D10
5988	D10
5989	D10
5990	D10
5991	E10
5994	E10
5996	F10
5997	F10
5998	G10
6951	G6
7952	E4
7953	C5
7954	D4
7955	E4
7992	E9
7995	F9
F952	C3
F953	C3
F954	G6
F955	E3
F958	A6
F960	C6
F988	D11
I951	F3
I952	G3
I953	G3
I954	G4
I955	F5
I956	D4
I958	E4
I959	C5
I961	D4
I992	E9
I995	F8
I996	F9

Layout TV & Scaler Board: (Overview Top Side)

1002	C5
1004	C4
1005	D4
1009	D3
1302	D2
1303	D1
1304	D2
1305	D1
1328	C2
1329	B2
1330	C2
1406	A5
1407	A8
1408	A6
1409	A8
1530	A6
1532	C5
1601	D7
1701	B1
1704	A2
1801	D8
1910	A1
1951	A6
2001	B3
2003	C3
2004	B2
2005	B3
2010	B3
2011	B3
2013	C3
2014	C3
2015	C3
2016	C4
2017	C4
2018	C4
2019	A4
2020	A4
2021	A4
2022	A4
2023	C4
2025	C4
2026	C4
2028	A4
2029	C4
2030	C4
2031	B4
2032	B4
2033	B4
2034	A4
2041	B4
2042	A4
2044	B4
2045	A4
2048	A3
2052	B4
2053	D4
2055	B4
2060	B3
2062	A4
2065	D3
2066	D3
2068	B2
2070	B3
2072	B3
2073	A3
2074	B3
2076	B4
2077	B4
2078	B4
2079	A3
2082	B3
2083	B3
2084	B3
2085	A3
2086	A3
2087	C3
2099	B4
2302	D1
2303	C1
2307	C1
2308	C1
2311	B1
2313	C2
2314	C2
2317	D2
2318	D2
2321	C1
2324	C2
2358	C3
2359	C3
2361	C4
2363	C4
2364	C4
2365	C5
2366	C4
2367	C4
2368	C4
2370	C3
2371	C3
2372	C3
2373	C3
2374	C3
2378	B4
2379	B4
2381	B4
2387	C3
2388	C3
2394	B4
2397	C4
2398	C4
2403	B6
2404	B6
2405	B6
2406	B6
2407	B6
2408	B7
2409	B6
2410	B6
2411	B6
2412	B6
2413	B6
2414	C6
2415	C6
2416	C6
2419	C7
2420	C7
2421	C7
2422	C7
2423	B7
2424	B7
2425	B7
2426	B7
2427	B7
2428	B7
2429	B7
2430	B7
2431	B7
2432	B7
2433	B7
2436	B6
2437	B6
2438	B6
2439	B6
2440	C6
2441	C7
2442	B6
2443	B6
2444	B6
2445	B6
2446	C7
2447	C6
2448	C6
2449	C6
2450	C6
2452	C6
2453	C6
2454	C6
2455	C6
2456	C6
2457	C7
2461	B7
2462	B7
2463	C6
2464	C6
2466	C6
2467	C6
2468	C6
2469	C6
2471	C6
2472	C6
2473	C6
2474	C6
2475	C6
2476	C6
2477	C6
2479	B7
2480	B7
2481	B7
2483	B6
2484	B6
2485	B6
2486	B7
2487	C5
2488	C5
2490	C6
2491	C6
2492	C6
2494	C7
2496	C6
2503	A8
2504	B8
2505	B8
2506	B8
2507	B8
2508	B8
2509	B8
2510	B8
2511	B8
2512	B8
2513	B8
2514	B8
2515	B8
2516	B8
2517	B8
2531	B6
2532	B5
2533	A5
2580	A2
2581	A3
2582	A3
2583	A3
2584	A3
2585	A3
2586	A3
2587	A3
2588	A3
2601	D6
2602	D5
2603	D5
2604	D5
2607	C5
2608	C6
2609	D6
2610	D6
2612	C7
2613	C6
2614	C6
2615	C6
2616	C6
2617	D6
2618	D6
2619	C6
2620	C6
2621	D7
2622	D7
2623	D7
2624	C5
2630	D6
2631	D6
2632	D6
2633	D7
2634	C7
2635	C7
2636	C7
2637	D6
2638	D5
2639	C6
2701	B2
2702	A2
2703	A1
2704	A2
2705	A2
2706	A2
2709	B1
2712	A1
2713	A1
2718	B2
2719	B1
2735	A2
2736	A2
2737	A2
2738	A2
2739	A2
2740	A2
2741	A2
2742	B2
2743	A3
2744	A3
2745	B2
2746	A2
2804	D7
2805	D7
2811	D8
2812	C8
2815	C8
2816	D8
2817	D7
2821	D8
2822	D8
2823	D8
2827	D7
2828	D8
2829	C8
2832	D8
2835	C7
2836	D7
2841	C7
2842	C7
2844	C7
2845	D7
2846	C8
2847	D7
2848	D7
2849	D8
2910	A4
2936	A2
2937	A1
2938	A1
2939	A1
2940	A1
2941	A1
2959	A7
2961	A7
2962	A5
2964	A5
2965	A5
2966	A5
2968	A5
2969	A5
2970	A5
2992	A8
2993	A8
2995	C8
3005	A4
3006	B3
3008	B3
3009	C3
3010	C3
3011	C3
3012	C5
3013	C4
3014	C4
3016	A3
3020	A4
3021	A4
3022	A4
3023	A4
3025	A4
3026	A4
3027	A4
3028	C4
3029	A4
3030	A4
3031	C5
3032	A4
3033	C4
3034	C4
3035	C4
3036	C4
3037	A4
3038	A4
3048	B4
3054	B4
3055	C4
3056	A3
3057	A4
3058	A5
3059	B3
3061	A5
3063	A4
3064	D5
3065	A4
3066	A4
3067	B4
3068	B4
3069	B4
3070	A3
3071	D4
3072	B3
3073	B3
3074	C3
3075	B2
3076	C3
3077	A3
3078	B3
3079	B3
3080	B3
3081	B3
3082	B4
3083	B4
3084	B3
3088	B4
3089	B3
3091	B4
3092	A4
3093	B4
3094	B4
3096	B4
3097	A4
3098	B5
3302	D1
3303	C1
3304	D2
3305	D2
3309	D1
3311	D1
3313	C2
3314	C2
3315	D2
3316	C2
3317	D2
3319	C1
3320	C2
3321	C1
3322	C2
3323	C2
3324	C2
3325	C2
3326	C2
3327	C1
3328	D3
3329	D3
3357	B3
3358	D4
3360	C4
3361	C4
3362	C5
3363	C4
3365	C4
3366	B4
3367	C4
3368	C4
3369	C4
3370	C3
3373	C5
3389	B4
3390	C4
3391	C4
3392	C4
3393	C4
3394	B2
3422	B7
3423	B6
3424	C6
3425	B6
3426	C6
3427	C7
3428	B5
3429	B5
3432	B6
3433	B6
3434	B6
3436	B6
3437	B6
3438	B6
3439	B6
3440	B6
3442	C6
3443	C6
3444	C7
3445	C6
3446	C6
3448	B6
3450	C7
3451	C7
3452	C7
3459	B6
3501	B8
3502	B8
3503	B8
3531	B6
3532	C5
3533	B5
3534	B5
3536	A6
3538	A5
3539	A5
3540	A5
3541	A5
3542	A6
3543	A6
3544	A5
3545	A5
3546	A6
3547	A5
3548	A5
3549	A6
3550	A6
3551	A6
3552	A6
3553	A6
3580	A3
3581	A3
3601	D6
3602	D5
3603	D5
3604	D5
3612	C7
3613	C6
3614	C6
3615	C7
3616	C6
3617	D6
3618	D6
3619	C6
3620	C6
3625	D6
3626	D6
3630	D6
3631	D5
3632	D5
3633	D6
3641	C5
3646	C5
3703	A2
3705	A2
3706	A2
3708	A2
3709	A2
3710	A2
3714	A1
3715	A1
3717	A1
3726	B2
3727	B2
3735	A2
3736	A2
3737	A2
3738	A2
3739	A2
3740	A2
3741	A3
3742	A2
3743	A3
3744	A2
3745	A3
3746	A2
3747	A2
3748	A2
3749	A2
3750	A2
3751	A2
3808	D8
3809	C8
3810	D8
3815	D7
3816	D7
3817	C8
3819	C8
3822	D8
3823	D8
3827	D7
3829	D7
3833	D7
3836	D7
3837	D7
3838	D7
3839	D7
3910	A4
3911	A4
3955	A7
3958	A7
4002	C3
4004	C3
4005	C3
4006	C3
4007	C3
4008	B4
4011	C5
4012	C5
4015	A4
4016	A4
4022	B2
4312	C2
4313	C2
4318	D3
4327	C2
4328	C2
4329	C1
4330	C2
4331	C2
4332	C2
4333	C2
4334	C2
4335	C2
4336	C2
4337	C2
4338	C2
4339	D1
4340	D1
4360	C4
4361	C4
4362	C4
4363	B4
4427	C7
4428	C7
4445	C7
4568	B4
4580	A3
4581	A3
4582	A3
4583	A3
4584	A3
4585	A3
4586	A3
4587	A3
4588	A3
4589	A3
4590	A3
4591	A3
4592	A3
4593	A3
4601	D6
4602	D6
4603	D6
4604	D6
4605	D6
4606	D6
4607	D6
4608	D6
4701	A2
4702	A2
4703	A2
4704	A2
4705	A2
4706	D3
4707	D3
4708	B3
4836	D7
4838	D7
5001	B2
5002	B2
5007	B4
5008	B4
5010	B5
5060	B2
5070	B3
5071	B3
5304	D2
5309	C1
5321	C1
5324	C1
5339	C3
5340	C3
5360	B4
5372	B4
5580	A3
5601	D6
5607	C5
5646	D6
5803	D8
5910	A4
5920	A4
5932	A3
5955	A6
5956	A7
5957	A7
5958	A5
5959	A7
5960	A6
5984	C6
5985	C6
5986	C6
5987	C6
5988	C6
5989	B7
5990	B6
5991	B6
5994	A8
5996	C6
5997	C6
5998	B6
6001	B3
6002	B5
6020	A4
6021	A4
6073	A3
6074	A3
6075	A3
6076	B2
6310	D1
6311	D1
6323	C1
6324	C1
6328	D2
6329	D2
6330	C1
6331	D1
6646	D6
6910	A4
6911	A4
7005	A3
7011	B3
7015	A4
7016	A4
7017	A4
7018	A4
7019	A4
7068	B4
7070	B3
7075	A3
7099	A3
7316	D2
7320	C1
7325	C1
7360	C4
7415	A8
7449	C7
7531	B6
7532	C5
7580	A3
7581	A3
7582	A3
7583	A3
7584	A3
7585	A3
7601	D6
7606	D7
7607	D6
7703	A2
7707	B2
7740	A2
7801	C8
7806	D8
7807	D8
7809	C7
7810	D8
7910	A4
7920	A4
7953	A7
7954	A6
7955	A7
7992	A8
7995	C8

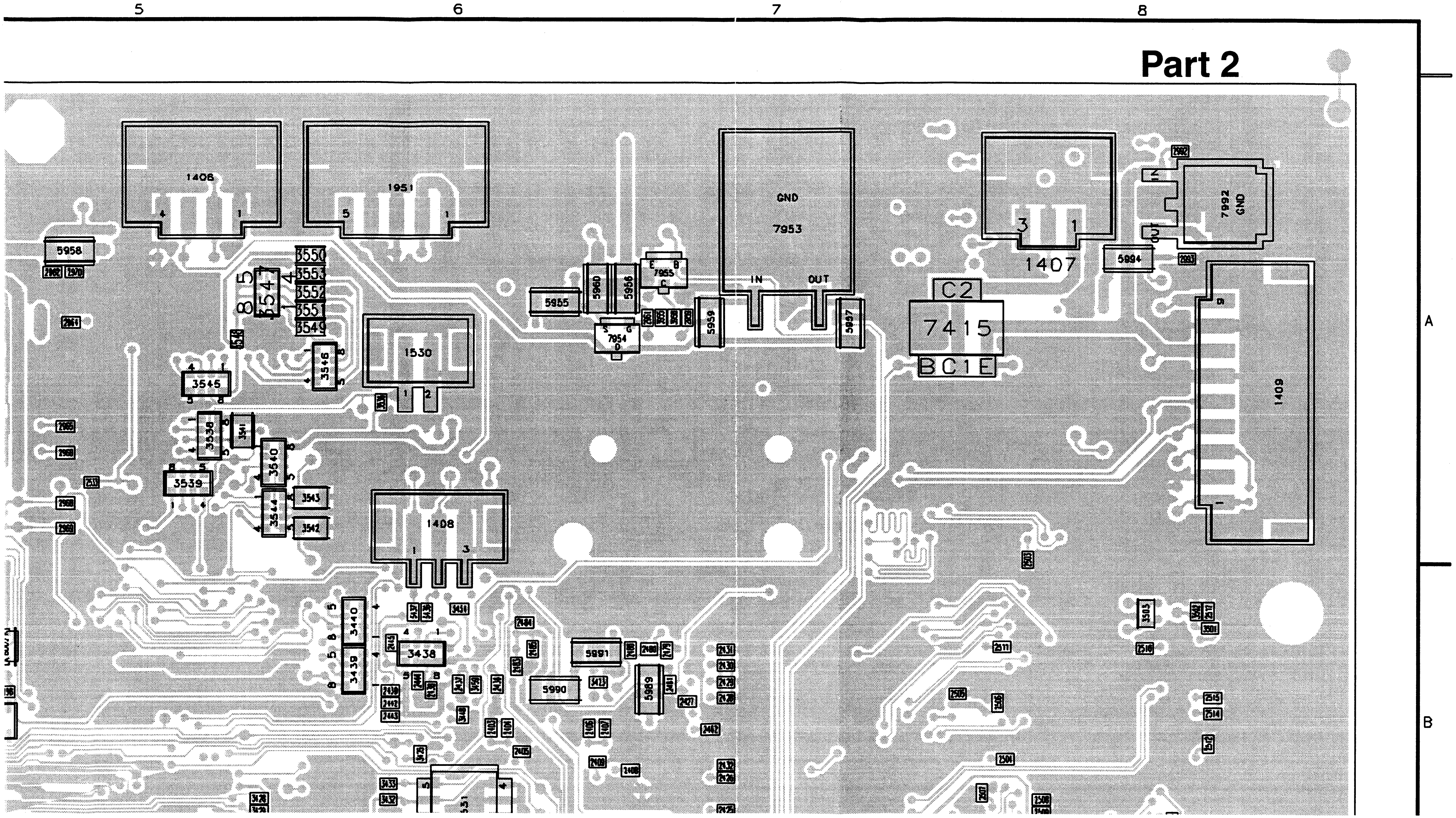


Layout TV & Scaler Board: (Part 1 Top Side)


1
2
3
4
A
B
Part 1
1910
1704
7583
7584
7582
5932
2019
5910
5920
7920
GND
OUT
IN
7016
7015
7017
7099
7580
7581
7740
2703
2709
2311
1701
7707
2745
5001
5002
7005
7070
6001
6073
6074
6076
7075
7018
7019
7810
6020
6021
5372
5007
5008
5010
2713
2719
2701
2748

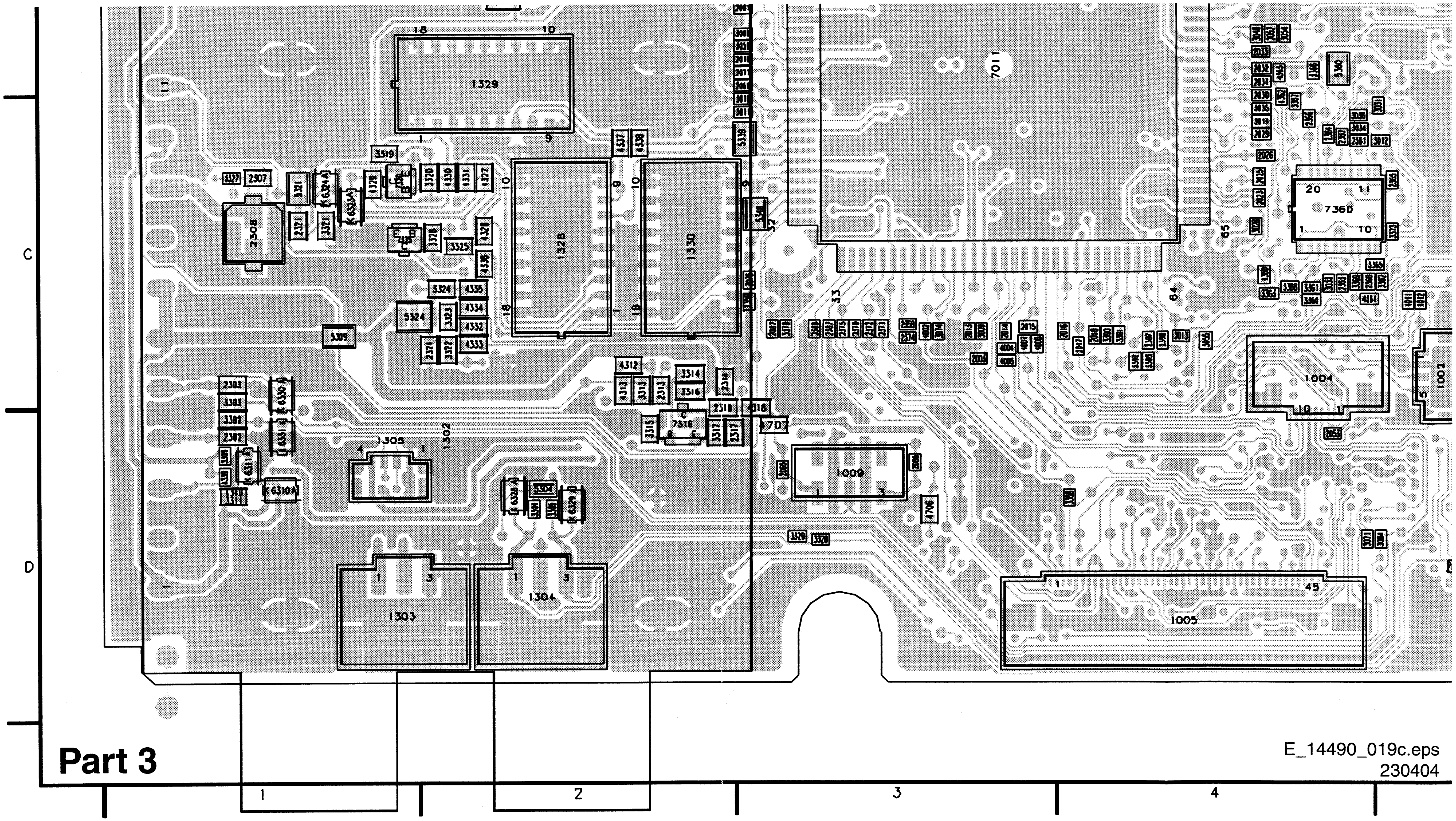
E_14490_019a.eps
230404

Layout TV & Scaler Board: (Part 2 Top Side)


5
6
7
8
A
B
Part 2
1408
1951
GND
7953
IN
OUT
1407
7992
GND
5958
3550
3553
3552
3551
3549
3547
5955
5960
5956
7955
7954
5959
5957
C2
7415
BC1E
5994
1409
3545
3546
1530
3536
3541
3540
3539
3543
3544
3542
1408
3440
3439
3438
5991
5990
5989

E_14490_019b.eps
230404

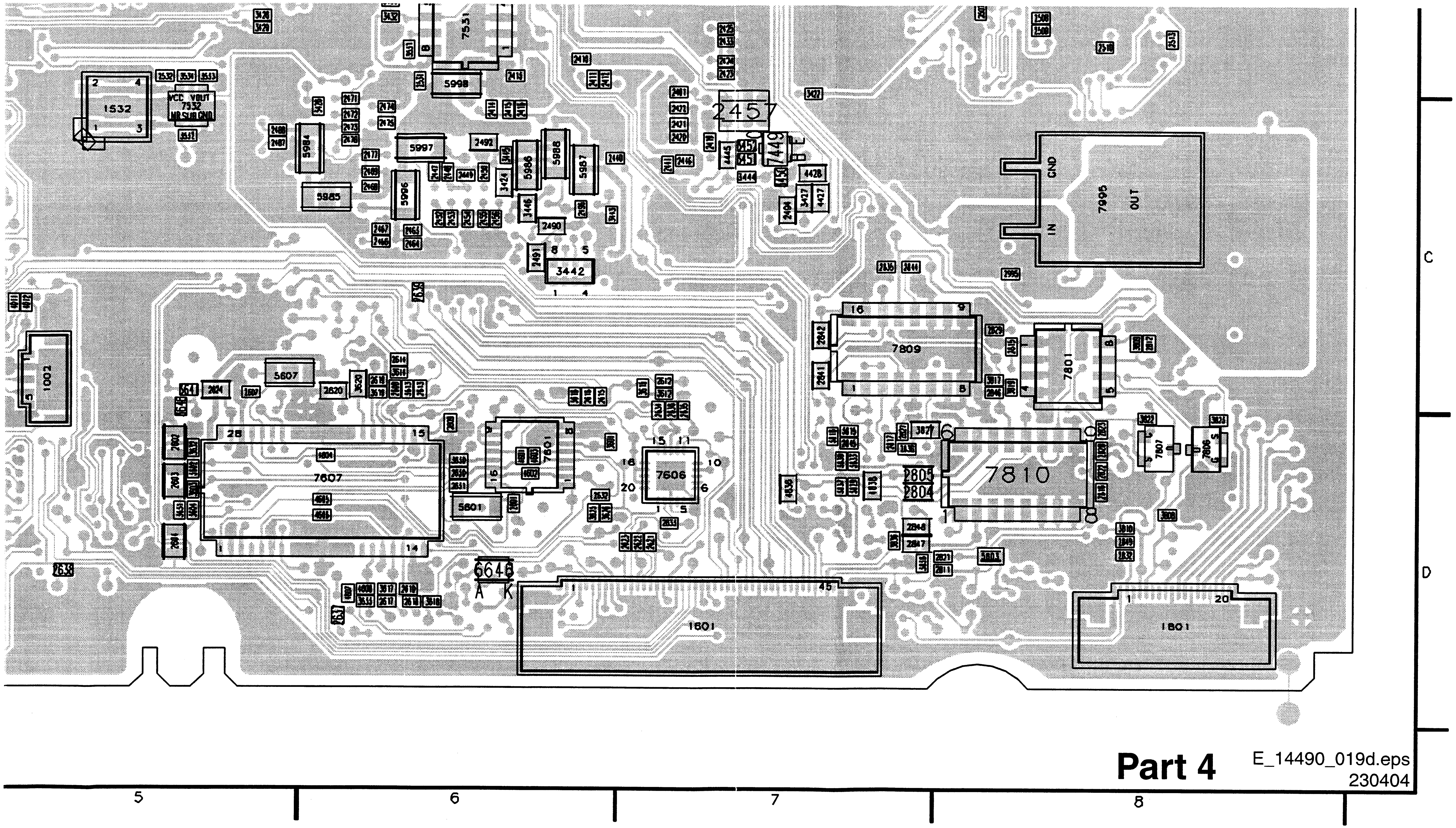
Layout TV & Scaler Board: (Part 3 Top Side)


C
D
1
2
3
4
1329
1328
1330
7011
7360
1004
1002
1005
1009
1303
1304
1305
2308
7318

Part 3

E_14490_019c.eps
230404

Layout TV & Scaler Board: (Part 4 Top Side)

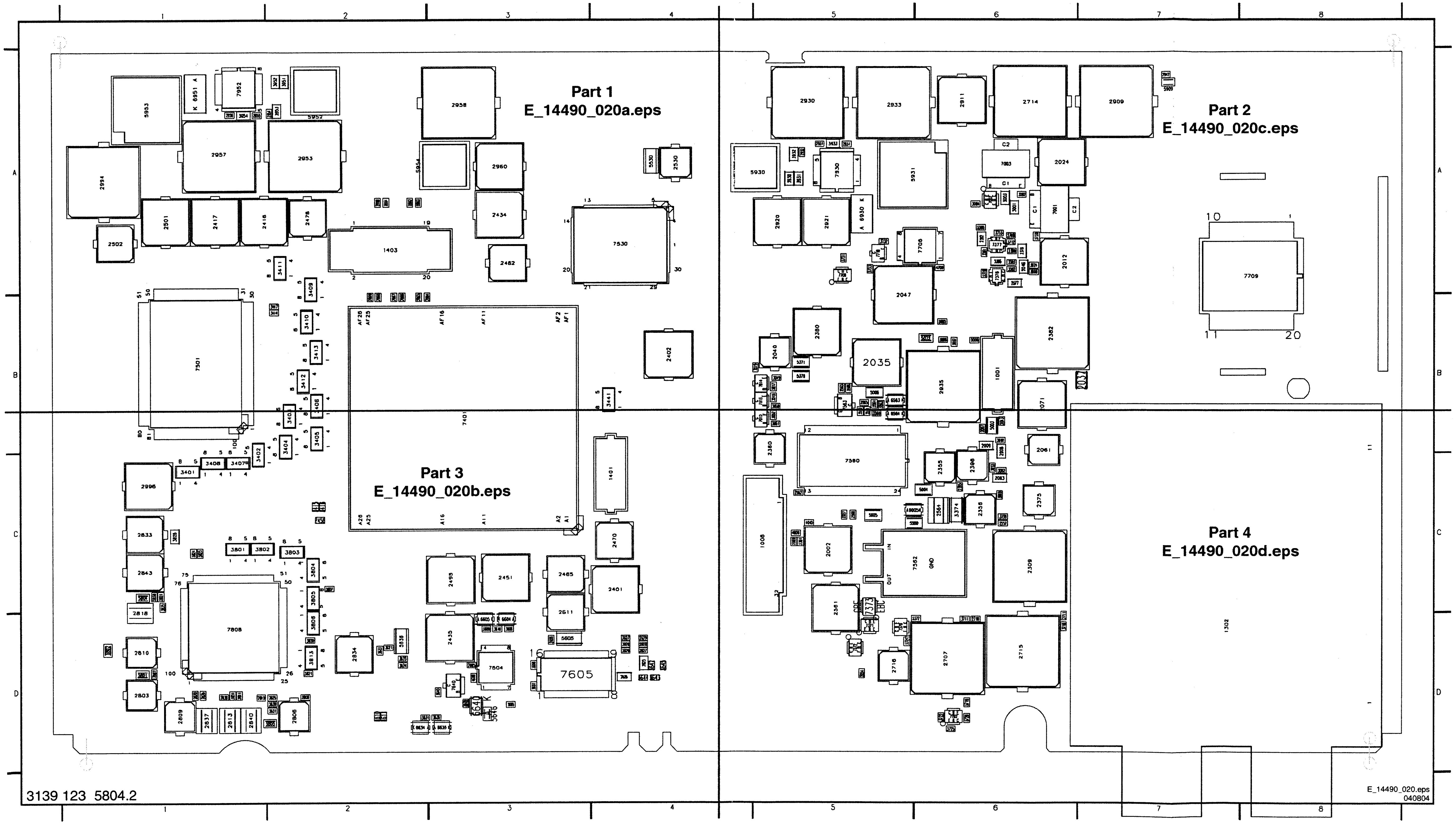

7531
5998
1532
VCC_VOUT
7532
5984
5997
5985
5996
2492
5986
5988
5987
2490
3442
2457
7449
7995
GND
IN
OUT
7809
7801
1002
5607
2620
7607
7601
7606
5601
6646
A K
1601
7810
2805
2804
7807
7808
1801
C
D
5
6
7
8

Part 4

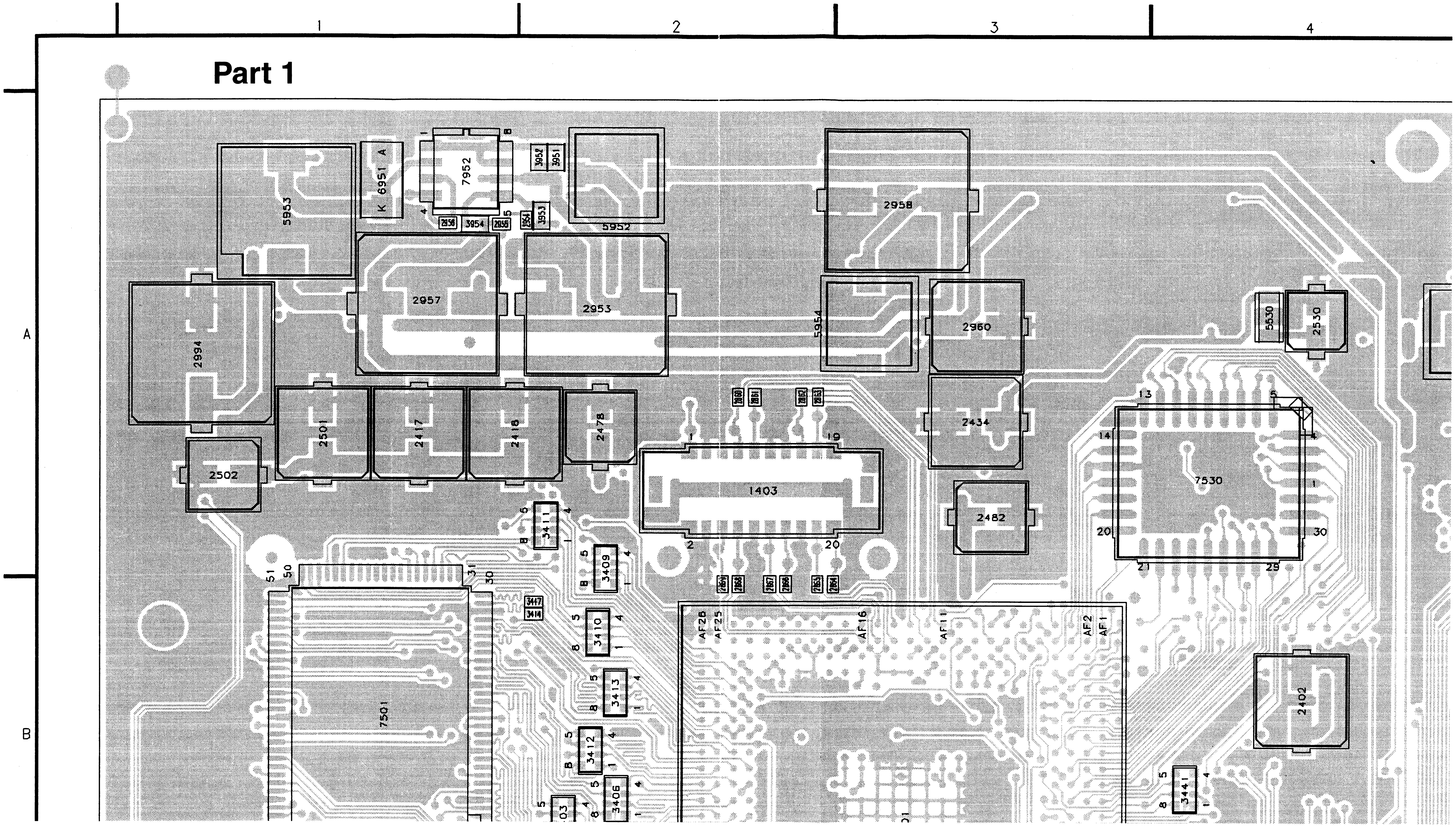
E_14490_019d.eps
230404

Layout TV & Scaler Board: (Overview Bottom Side)

1001	B6
1008	C5
1401	C4
1403	A2
2002	C5
2006	B6
2007	B6
2008	B6
2009	B6
2012	A6
2024	A6
2027	C5
2035	B5
2040	B5
2043	B6
2046	A6
2047	B5
2054	D5
2061	B6
2063	C6
2071	B6
2089	C5
2309	C6
2355	C6
2356	C6
2357	C6
2360	B5
2375	C6
2376	A6
2377	A6
2380	B5
2382	B6
2386	A6
2392	A6
2395	C6
2396	C6
2401	C4
2402	B4
2417	A1
2418	A1
2434	A3
2435	D3
2451	C3
2458	C2
2465	C3
2470	C4
2478	A2
2482	A3
2495	C3
2501	A1
2502	A1
2530	A4
2560	C5
2561	C5
2562	C5
2563	B5
2564	C6
2605	D3
2606	D3
2611	D3
2625	D4
2626	D4
2627	D4
2628	D4
2629	D4
2707	D6
2708	A6
2710	D6
2711	D6
2714	A6
2715	D6
2716	D5
2803	D1
2806	D2
2807	D1
2808	D2
2809	D1
2810	D1
2813	D1
2814	D1
2818	D1
2819	D1
2820	D1
2824	C1
2825	D2
2826	D1
2830	C1
2833	C1
2834	D2
2837	D1
2838	D1
2839	D2
2840	D1
2843	C1
2860	A2
2861	A2
2862	A2
2863	A2
2864	B2
2865	B2
2866	B2
2867	B2
2868	B2
2869	B2
2909	A7
2911	A6
2920	A5
2921	A5
2930	A5
2931	A5
2932	A5
2933	A5
2934	A5
2935	B6
2942	A7
2953	A2
2954	A2
2955	A1
2956	A1
2957	A1
2958	A3
2960	A3
2994	A1
2996	C1
3000	A6
3001	A6
3002	A6
3003	A6
3004	A6
3007	B6
3015	B5
3017	B5
3019	B5
3024	A6
3049	B5
3050	B5
3051	B5
3052	B5
3053	C6
3060	C6
3062	C6
3085	B6
3086	B6
3087	B6
3359	C6
3364	C5
3371	D5
3372	D6
3374	C6
3378	A6
3380	A6
3381	A6
3382	A6
3383	A6
3386	A6
3401	C1
3402	C1
3403	B2
3404	B2
3405	B2
3406	B2
3407	C1
3408	C1
3409	A2
3410	B2
3411	A2
3412	B2
3413	B2
3414	B2
3415	C2
3416	C2
3441	B4
3447	B2
3560	B5
3561	B5
3562	B5
3563	B5
3564	B5
3565	B5
3566	B5
3605	D3
3606	D3
3607	D3
3608	D3
3609	D3
3610	D3
3621	D2
3622	D2
3623	D2
3624	D2
3627	D4
3628	D4
3629	D4
3634	D2
3635	D3
3636	D3
3640	D3
3642	D4
3643	D4
3644	D4
3645	D4
3711	D6
3712	A6
3713	A6
3718	D6
3719	D6
3720	D6
3722	D6
3725	D6
3730	A6
3731	A5
3732	A5
3733	A5
3801	C1
3802	C1
3803	C2
3804	C2
3805	C2
3806	D2
3807	C2
3813	D2
3821	D2
3824	C1
3825	C1
3826	C1
3830	D2
3831	D2
3834	D1
3835	C1
3930	A5
3931	A5
3932	A5
3933	A5
3951	A2
3952	A2
3953	A2
3954	A1
4009	C5
4010	C5
4609	D3
4636	D3
4709	A6
5003	B6
5004	C6
5005	C5
5006	B5
5072	B6
5370	B5
5371	B5
5530	A4
5560	C5
5605	D3
5636	D2
5801	D1
5802	D1
5804	C1
5805	D2
5909	A7
5930	A5
5931	A5
5952	A2
5953	A1
5954	A2
6005	C5
6563	B5
6564	B5
6604	D3
6605	D3
6634	D2
6635	D3
6640	D3
6930	A5
6951	A1
7001	A6
7002	A6
7003	A6
7012	B5
7013	B5
7014	B5
7370	D5
7371	D5
7372	D5
7376	A6
7377	A6
7401	B3
7501	B1
7530	A4
7560	C5
7562	C6
7563	B5
7604	D3
7605	D3
7640	D3
7702	D6
7706	A6
7708	A5
7709	A8
7710	A5
7808	D1
7930	A5
7952	A1



Layout TV & Scaler Board: (Part 1 Bottom Side)


1
2
3
4
A
B
Part 1
5953
K 6951 A
7952
3952
3951
3954
3953
5952
2958
2957
2953
2994
5954
2960
5530
2530
2501
2417
2418
2478
1403
2434
7530
2502
2482
3411
3409
3417
3414
3410
3413
3412
3406
7501
2402
3441
AF28
AF25
AF16
AF11
AF2
AF1

E_14490_020a.eps
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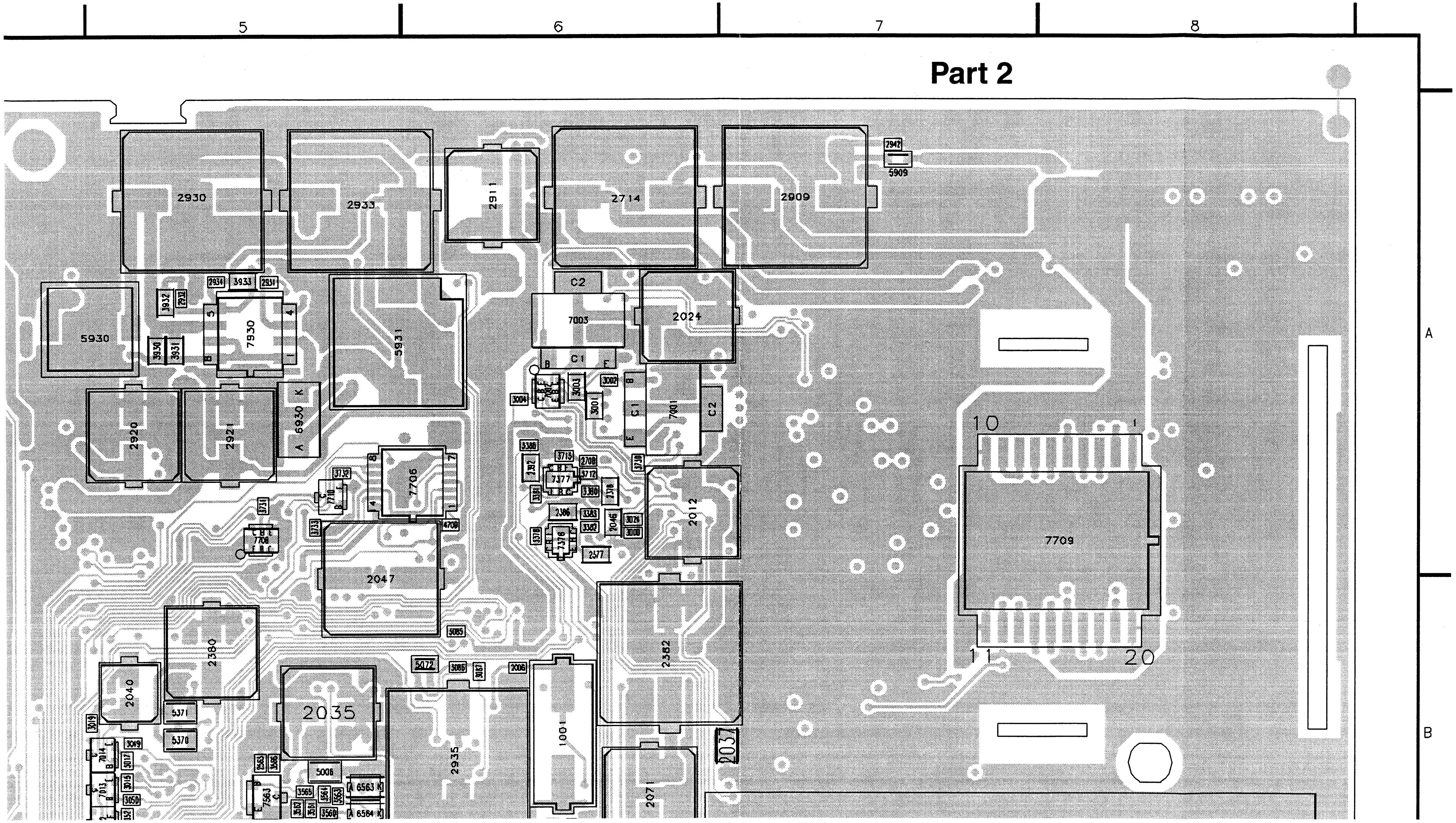
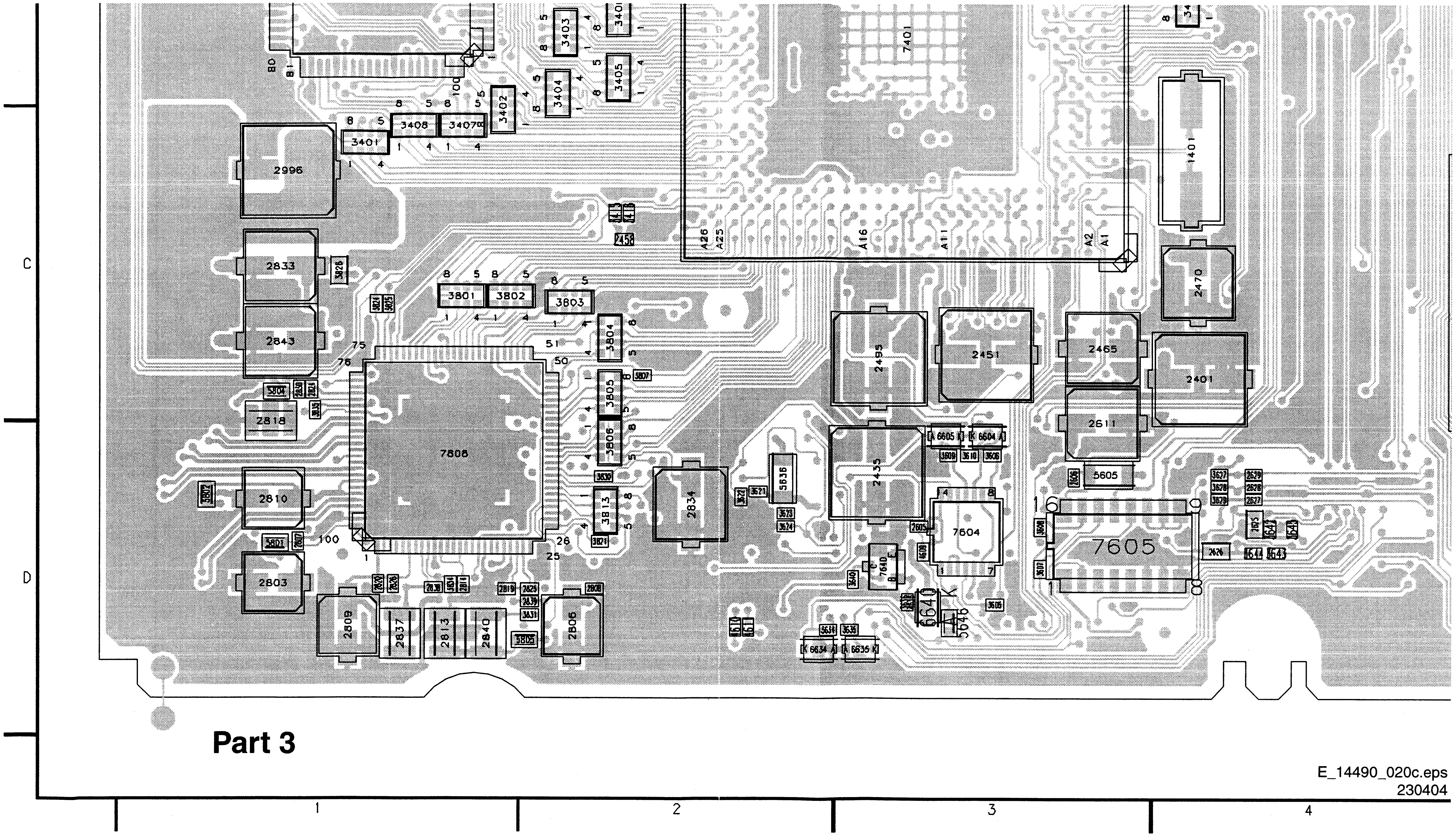
Layout TV & Scaler Board: (Part 2 Bottom Side)


5
6
7
8
Part 2
A
B
2930
2933
2911
2714
2909
2942
5909
5930
2934
3933
2931
3932
2932
7930
3930
3931
5931
C2
7003
C1
2024
3004
3003
3001
3002
7001
2920
2921
6930
7706
3732
7710
3731
3733
7708
4708
3380
3382
3715
2708
7377
3712
3381
3378
2386
3383
3382
3379
7378
2577
3718
2012
7709
10
1
11
20
2047
5085
2380
5072
5086
3087
2006
2382
2040
5371
5370
2035
2935
1001
2037
2071
3019
3049
7014
3017
3016
7013
3050
5006
3565
3564
3563
7563
3562
3561
3560
6563
6564

E_14490_020b.eps
230404

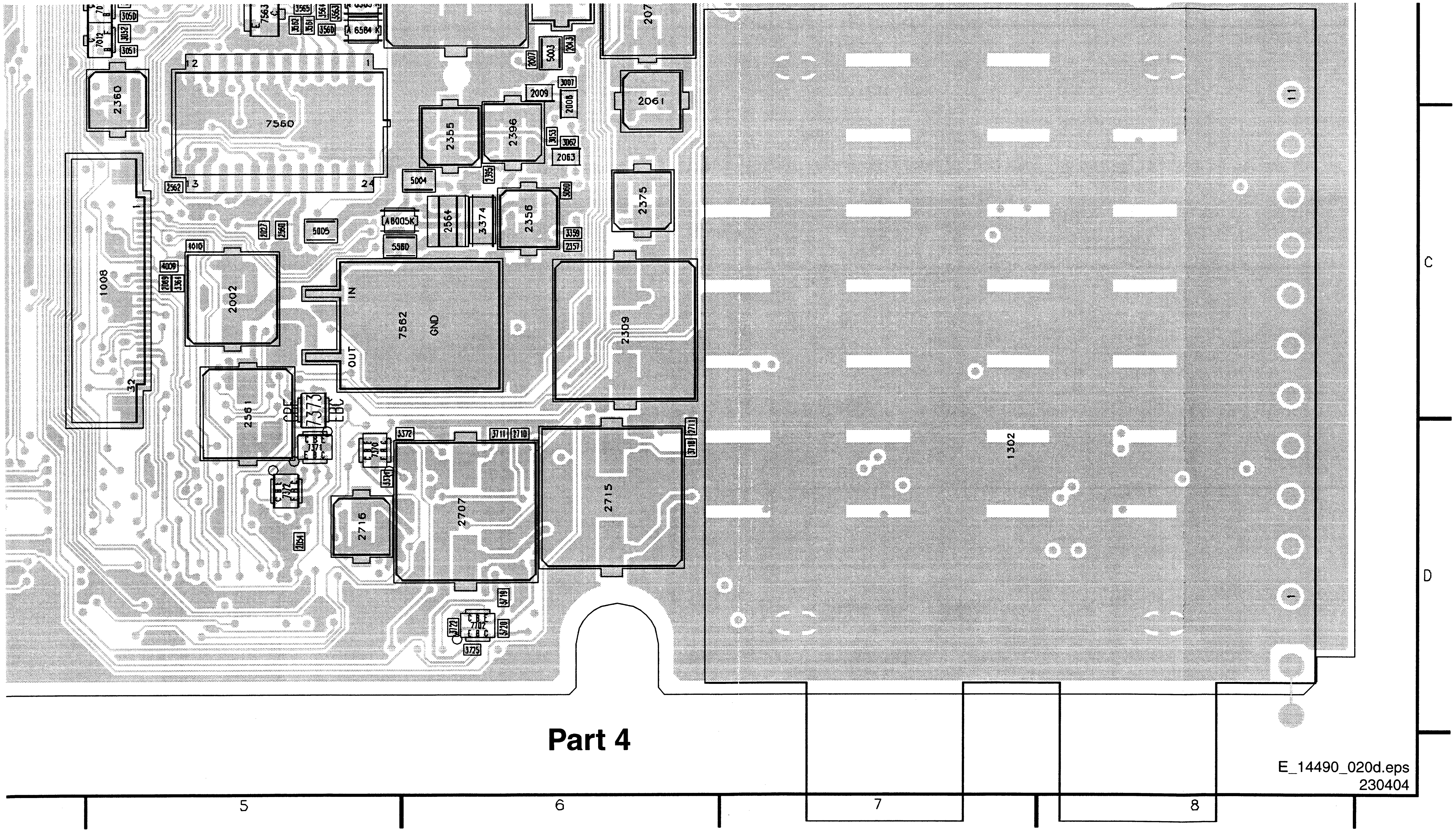
Layout TV & Scaler Board: (Part 3 Bottom Side)


C
D
1
2
3
4
3401
3402
3403
3404
3405
3407
3408
7401
1401
2996
2833
2843
2818
2810
2803
2809
2837
2813
2840
2806
3801
3802
3803
3804
3805
3806
3807
3813
7806
2834
2458
5636
2495
2451
2435
2465
2611
2470
2401
5605
7604
7605
7640
6640
6605
6604
6634
6635
A26
A25
A16
A11
A2
A1
75
76
100
1
25
26
50
51
80
81

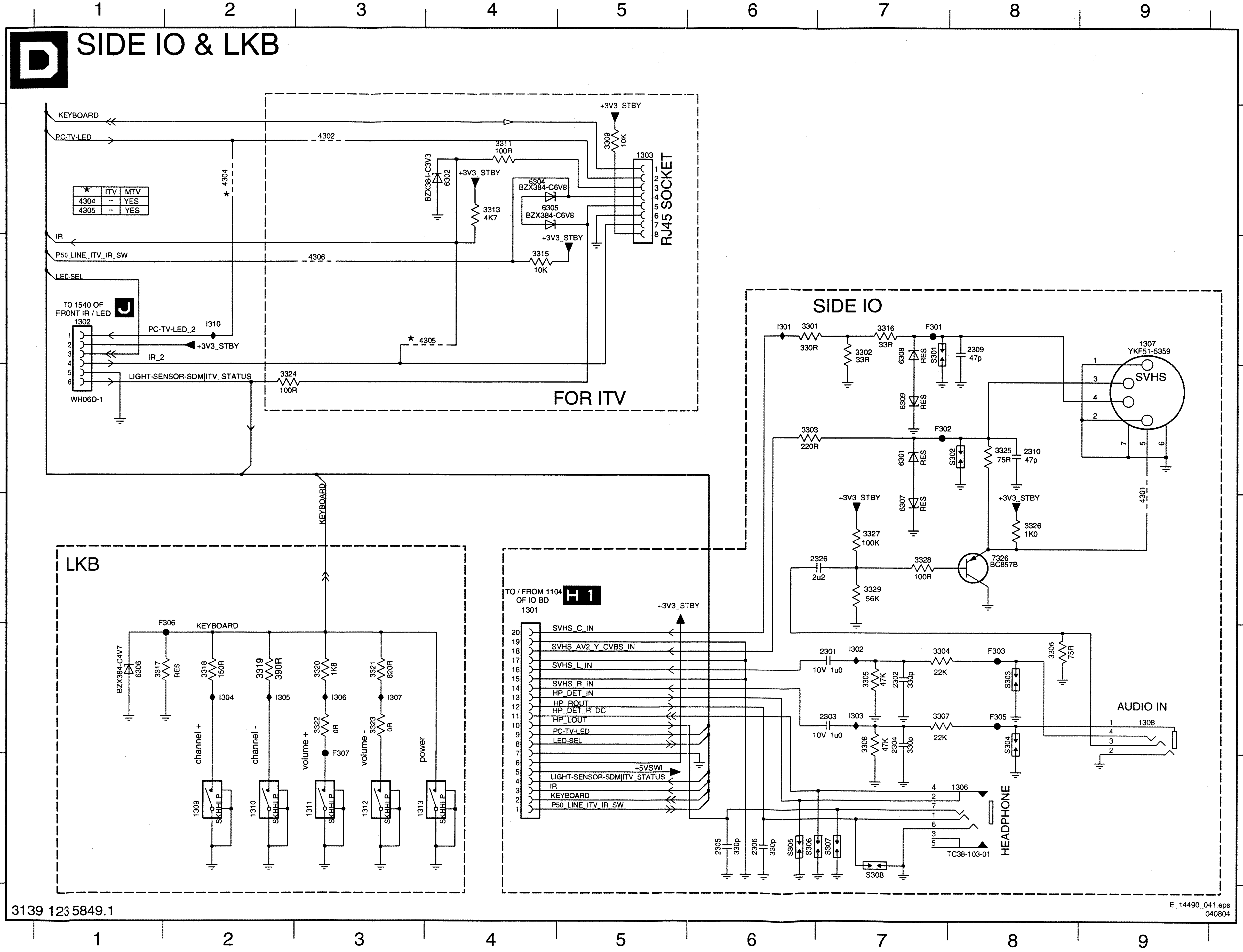
Part 3

E_14490_020c.eps
230404

Layout TV & Scaler Board: (Part 4 Bottom Side)

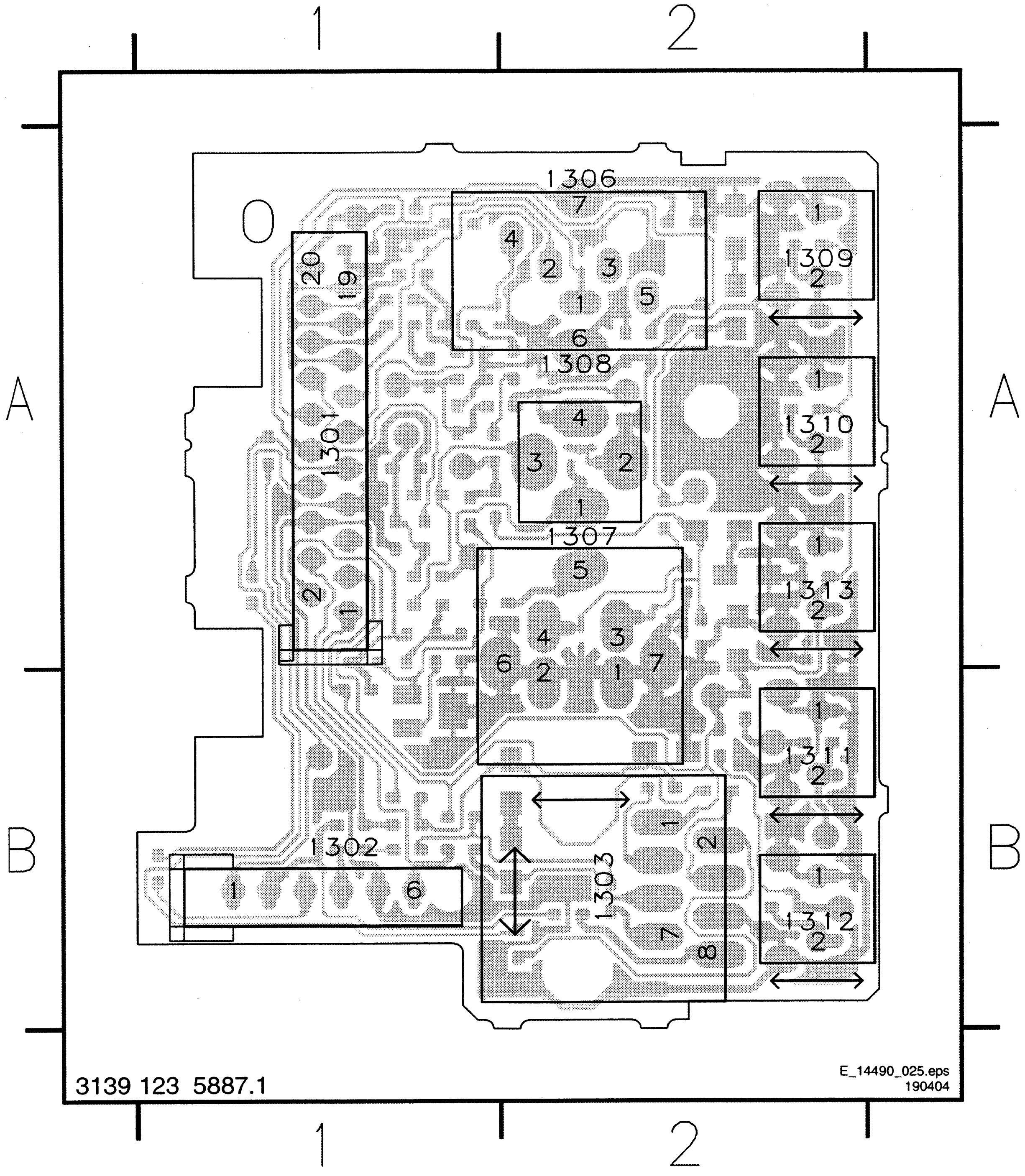

Part 4
E_14490_020d.eps
230404
5
6
7
8
C
D
7560
2360
1008
2002
7562
IN
OUT
GND
2309
2561
2355
2396
2358
2564
3374
2575
2061
2707
2715
2716
1302
5004
5005
5580
A8005K
4010
4009
2562
3050
3051
3052
7012
7563
6584
5003
2009
3007
2008
3053
3062
2083
2007
2043
3359
2357
3372
3711
2710
3721
3718
3719
3720
3725
7702
7373
7372
2054
2127
2368

Side IO and LKB Panel


D
SIDE IO & LKB
KEYBOARD
PC-TV-LED
4302
4304
*
*	ITV	MTV
4304	--	YES
4305	--	YES
IR
P50_LINE_ITV_IR_SW
4306
LED-SEL
TO 1540 OF FRONT IR / LED
J
1302
WH06D-1
PC-TV-LED_2
I310
+3V3_STBY
IR_2
4305
LIGHT-SENSOR-SDM|ITV_STATUS
3324 100R
FOR ITV
+3V3_STBY
3309 10K
3311 100R
BZX384-C3V3 6302
3313 4K7
6304 BZX384-C6V8
6305 BZX384-C6V8
3315 10K
1303
RJ45 SOCKET
SIDE IO
I301
3301 330R
3302 33R
3316 33R
F301
6308 RES
S301
2309 47p
6309 RES
3303 220R
F302
6301 RES
S302
3325 75R
2310 47p
6307 RES
1307 YKF51-5359
SVHS
4301
+3V3_STBY
3327 100K
3326 1K0
2326 2u2
3328 100R
3329 56K
7326 BC857B
LKB
F306
KEYBOARD
BZX384-C4V7 6306
3317 RES
3318 150R
3319 390R
3320 1K8
3321 820R
I304
I305
I306
I307
3322 0R
3323 0R
F307
channel +
channel -
volume +
volume -
power
1309 SKHHLP
1310 SKHHLP
1311 SKHHLP
1312 SKHHLP
1313 SKHHLP
TO / FROM 1104 OF IO BD
H 1
1301
+3V3_STBY
SVHS_C_IN
SVHS_AV2_Y_CVBS_IN
SVHS_L_IN
SVHS_R_IN
HP_DET_IN
HP_ROUT
HP_DET_R_DC
HP_LOUT
PC-TV-LED
LED-SEL
+5VSWI
LIGHT-SENSOR-SDM|ITV_STATUS
IR
KEYBOARD
P50_LINE_ITV_IR_SW
2301 10V 1u0
I302
3305 47K
2302 330p
3304 22K
F303
S303
3306 75R
2303 10V 1u0
I303
3308 47K
2304 330p
3307 22K
F305
S304
AUDIO IN
1308
1306
HEADPHONE
TC38-103-01
2305 330p
2306 330p
S305
S306
S307
S308
3139 123 5849.1
E_14490_041.eps 040804
1 2 3 4 5 6 7 8 9
A B C D E F

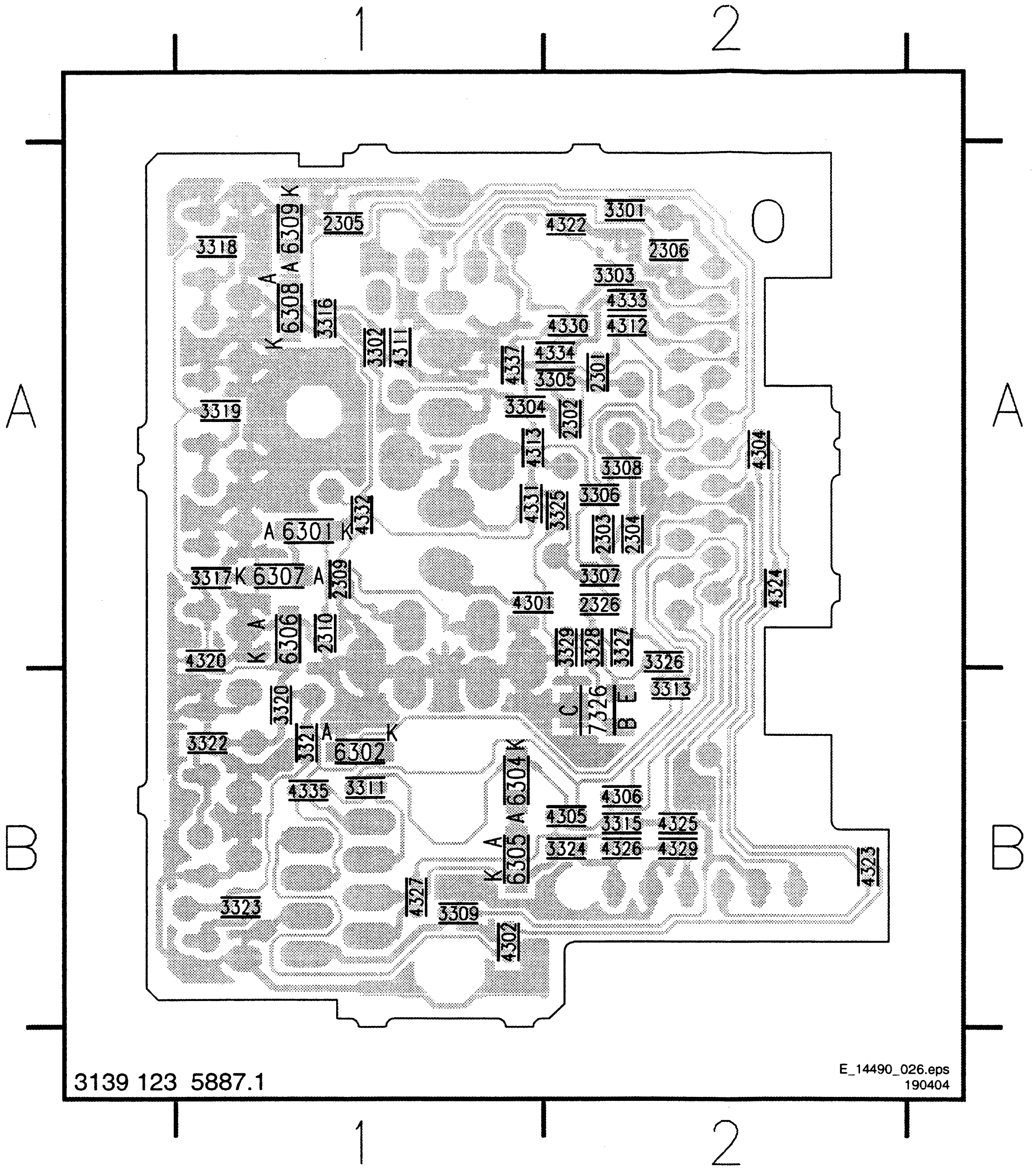
1301	D4
1302	B1
1303	A5
1306	F8
1307	B9
1308	E9
1309	F2
1310	F2
1311	F3
1312	F3
1313	F3
2301	E7
2302	E7
2303	E7
2304	E7
2305	F6
2306	F6
2309	B8
2310	C8
2326	D7
3301	B6
3302	B7
3303	C6
3304	E7
3305	E7
3306	E8
3307	E7
3308	E7
3309	A5
3311	A4
3313	A4
3315	B4
3316	B7
3317	E1
3318	E2
3319	E2
3320	E3
3321	E3
3322	E3
3323	E3
3324	C2
3325	C8
3326	D8
3327	D7
3328	D7
3329	D7
4301	C9
4302	A3
4304	A2
4305	B4
4306	B3
6301	C7
6302	A4
6304	A4
6305	A4
6306	E1
6307	D7
6308	B7
6309	C7
7326	D8
F301	B7
F302	C7
F303	E8
F305	E8
F306	E2
F307	F3
I301	B6
I302	E7
I303	E7
I304	E2
I305	E2
I306	E3
I307	E3
I310	B2
S301	B7
S302	C8
S303	E8
S304	E8
S305	F6
S306	F6
S307	F7
S308	F7

Layout Side IO and LKB Panel (Top Side)


1
2
A
B
0
1301
1302
1303
1306
1307
1308
1309
1310
1311
1312
1313
3139 123 5887.1
E_14490_025.eps
190404

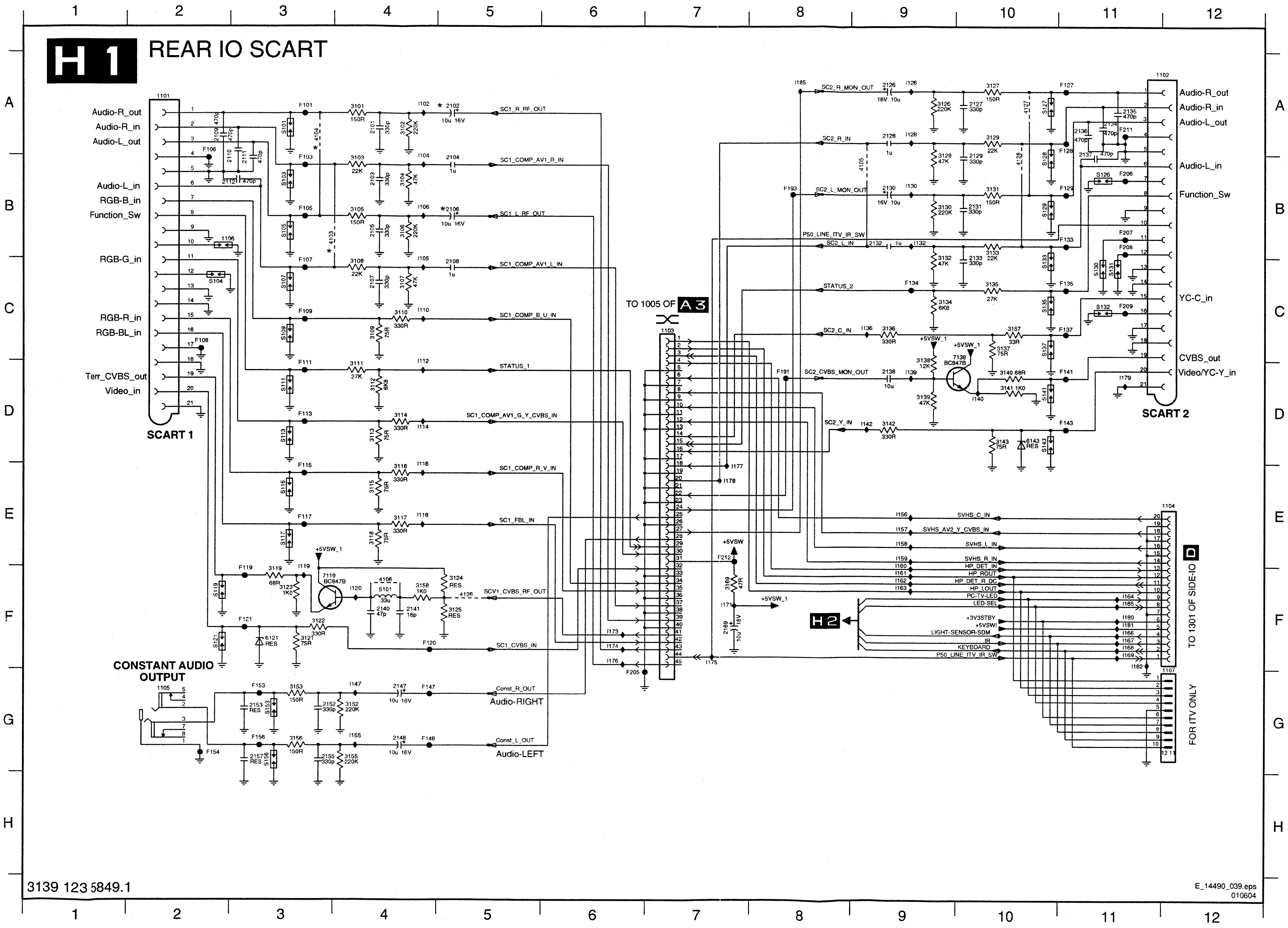
1301	A1
1302	B1
1303	B2
1306	A2
1307	A2
1308	A2
1309	A2
1310	A2
1311	B2
1312	B2
1313	A2

Layout Side IO and LKB Panel (Bottom Side)


1
2
A
B
0
3318
6309
6308
2305
3316
3302
4311
4322
3301
2306
3303
4333
4312
4330
4337
4334
3305
2301
3319
3304
2302
4313
2303
2304
3308
3306
4331
3325
4304
A 6301 K
4332
3317 K 6307 A
2309
3307
2326
4301
4324
4320
6306
2310
3329
3328
3327
3326
3313
7326
3320
3322
3321
6302
4335
3311
6304
4306
4305
3315
4325
3324
4326
4329
6305
4323
3323
4327
3309
4302
3139 123 5887.1
E_14490_026.eps
190404

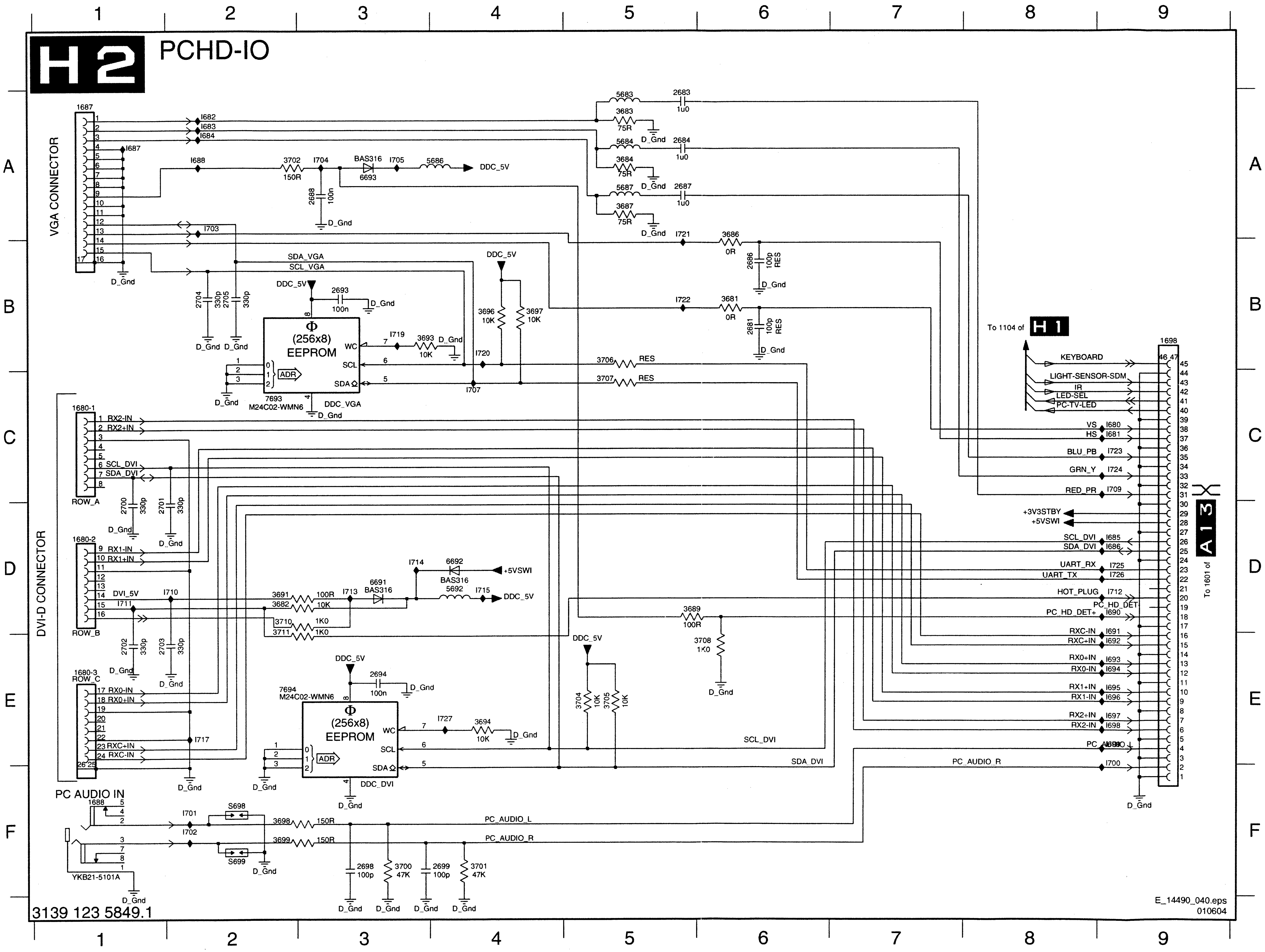
2301	A2
2302	A2
2303	A2
2304	A2
2305	A1
2306	A2
2309	A1
2310	A1
2326	A2
3301	A2
3302	A1
3303	A2
3304	A1
3305	A2
3306	A2
3307	A2
3308	A2
3309	B1
3311	B1
3313	B2
3315	B2
3316	A1
3317	A1
3318	A1
3319	A1
3320	B1
3321	B1
3322	B1
3323	B1
3324	B2
3325	A2
3326	A2
3327	A2
3328	A2
3329	A2
4301	A1
4302	B1
4304	A2
4305	B2
4306	B2
4311	A1
4312	A2
4313	A1
4320	A1
4322	A2
4323	B2
4324	A2
4325	B2
4326	B2
4327	B1
4329	B2
4330	A2
4331	A1
4332	A1
4333	A2
4334	A2
4335	B1
4337	A1
6301	A1
6302	B1
6304	B1
6305	B1
6306	A1
6307	A1
6308	A1
6309	A1
7326	B2

Rear IO Panel: Scart (17")


H 1
REAR IO SCART
SCART 1
Audio-R_out
Audio-R_in
Audio-L_out
Audio-L_in
RGB-B_in
Function_Sw
RGB-G_in
RGB-R_in
RGB-BL_in
Terr_CVBS_out
Video_in
SC1_R_RF_OUT
SC1_COMP_AV1_R_IN
SC1_L_RF_OUT
SC1_COMP_AV1_L_IN
SC1_COMP_B_U_IN
STATUS_1
SC1_COMP_AV1_G_Y_CVBS_IN
SC1_COMP_R_V_IN
SC1_FBL_IN
SCV1_CVBS_RF_OUT
SC1_CVBS_IN
+5VSW_1
7119 BC847B
CONSTANT AUDIO OUTPUT
Const_R_OUT
Audio-RIGHT
Const_L_OUT
Audio-LEFT
TO 1005 OF A3
SC2_R_MON_OUT
SC2_R_IN
SC2_L_MON_OUT
P50_LINE_ITV_IR_SW
SC2_L_IN
STATUS_2
SC2_C_IN
SC2_CVBS_MON_OUT
SC2_Y_IN
7138 BC847B
SCART 2
Audio-R_out
Audio-R_in
Audio-L_out
Audio-L_in
Function_Sw
YC-C_in
CVBS_out
Video/YC-Y_in
+5VSW
SVHS_C_IN
SVHS_AV2_Y_CVBS_IN
SVHS_L_IN
SVHS_R_IN
HP_DET_IN
HP_ROUT
HP_DET_R_DC
HP_LOUT
PC-TV-LED
LED-SEL
+3V3STBY
+5VSWI
LIGHT-SENSOR-SDM
IR
KEYBOARD
P50_LINE_ITV_IR_SW
H2
TO 1301 OF SIDE-IO D
FOR ITV ONLY
3139 123 5849.1
E_14490_039.eps
010604

1101	A2
1102	A11
1103	C7
1104	E12
1105	G2
1106	B2
1107	G12
2101	A4
2102	A5
2103	B4
2104	B5
2105	B4
2106	B5
2107	C4
2108	C5
2109	A2
2110	B2
2111	B3
2112	B2
2126	A9
2127	A10
2128	A9
2129	B10
2130	B9
2131	B10
2132	B9
2133	C10
2134	A11
2135	A11
2136	A11
2137	A11
2138	D9
2140	F4
2141	F4
2147	G4
2148	G4
2152	G3
2153	G3
2155	G3
2157	G3
2169	F7
3101	A4
3102	A4
3103	B4
3104	B4
3105	B4
3106	B4
3107	C4
3108	C4
3109	C4
3110	C4
3111	D4
3112	D4
3113	D4
3114	D4
3115	E4
3116	E4
3117	E4
3118	E4
3119	F3
3121	F3
3122	F3
3123	F3
3124	F5
3125	F5
3126	A9
3127	A10
3128	B9
3129	A10
3130	B9
3131	B10
3132	C9
3133	B10
3134	C9
3135	C10
3136	C9
3137	C10
3138	C9
3139	D9
3140	D10
3141	D10
3142	D9
3143	D10
3152	G4
3153	G3
3155	G4
3156	G3
3157	C10
3158	F4
3169	F7
4103	B3
4104	A3
4105	B9
4106	F4
4126	F5
4127	A10
4128	B10
5101	F4
6121	F3
6143	D10
7119	F4
7138	C9
F101	A3
F103	B3
F105	B3
F106	A2
F107	C3
F108	C2
F109	C3
F111	D3
F113	D3
F115	E3
F117	E3
F119	F3
F120	F4
F121	F3
F127	A11
F128	A11
F129	B11
F133	B11
F134	C9
F135	C11
F137	C11
F141	D11
F143	D11
F147	G4
F148	G4
F153	G3
F154	G2
F156	G3
F191	D8
F193	B8
F205	G6
F206	B11
F207	B11
F208	B11
F209	C11
F211	A11
F212	E7
I102	A4
I104	B4
I105	C4
I106	B4
I110	C4
I112	D4
I114	D4
I116	E4
I118	E4
I119	F3
I120	F4
I126	A9
I128	A9
I130	B9
I132	B9
I136	C9
I139	D9
I140	D10
I142	D9
I147	G4
I155	G4
I156	E9
I157	E9
I158	E9
I159	E9
I160	E9
I161	F9
I162	F9
I163	F9
I164	F11
I165	F11
I166	F11
I167	F11
I168	F11
I169	F11
I171	F7
I173	F6
I174	F6
I175	F7
I176	F6
I177	E7
I178	E7
I179	D11
I180	F11
I181	F11
I182	F11
I185	A8
S101	A3
S103	B3
S104	C2
S105	B3
S107	C3
S109	C3
S111	D3
S113	D3
S115	E3
S117	E3
S119	F2
S121	F2
S126	B11
S127	A10
S128	B10
S129	B10
S130	C11
S131	C11
S132	C11
S133	C10
S135	C10
S137	C10
S141	D10
S143	D10
S153	G3
S156	G3

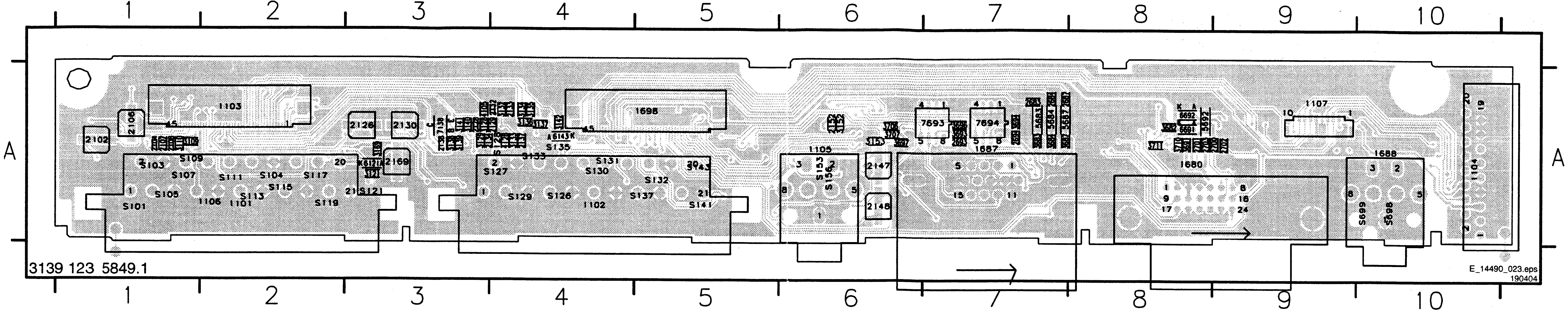
Rear IO Panel: PCHD-IO (17")


H2
PCHD-IO
VGA CONNECTOR
1687
DVI-D CONNECTOR
1680-1
ROW_A
1680-2
ROW_B
1680-3
ROW_C
RX2-IN
RX2+IN
SCL_DVI
SDA_DVI
RX1-IN
RX1+IN
DVI_5V
RX0-IN
RX0+IN
RXC+IN
RXC-IN
SDA_VGA
SCL_VGA
DDC_5V
DDC_VGA
DDC_DVI
D_Gnd
(256x8)
EEPROM
7693
M24C02-WMN6
7694
M24C02-WMN6
WC
SCL
SDA
ADR
BAS316
6693
6691
6692
+5VSWI
3702
150R
3691
100R
3682
10K
3710
1K0
3711
1K0
3693
10K
3694
10K
3696
10K
3697
10K
3704
10K
3705
10K
3689
100R
3708
1K0
3706
RES
3707
RES
3686
0R
3681
0R
2686
100p
RES
2681
100p
RES
5683
5684
5687
5686
5692
3683
75R
3684
75R
3687
75R
2683
1u0
2684
1u0
2687
1u0
2688
100n
2693
100n
2694
100n
2704
330p
2705
330p
2700
330p
2701
330p
2702
330p
2703
330p
PC AUDIO IN
1688
YKB21-5101A
S698
S699
3698
150R
3699
150R
2698
100p
3700
47K
2699
100p
3701
47K
PC_AUDIO_L
PC_AUDIO_R
To 1104 of H1
1698
KEYBOARD
LIGHT-SENSOR-SDM
IR
LED-SEL
PC-TV-LED
VS
HS
BLU_PB
GRN_Y
RED_PR
+3V3STBY
+5VSWI
SCL_DVI
SDA_DVI
UART_RX
UART_TX
HOT_PLUG
PC_HD_DET
PC_HD_DET+
RXC-IN
RXC+IN
RX0+IN
RX0-IN
RX1+IN
RX1-IN
RX2+IN
RX2-IN
PC_AUDIO_L
PC_AUDIO_R
To 1601 of A13
3139 123 5849.1
E_14490_040.eps
010604

1680-1	C1	I701	F2
1680-2	D1	I702	F2
1680-3	E1	I703	A2
1687	A1	I704	A3
1688	F1	I705	A3
1698	B9	I707	C4
2681	B6	I709	C9
2683	A5	I710	D2
2684	A5	I711	D1
2686	B6	I712	D9
2687	A5	I713	D3
2688	A3	I714	D3
2693	B3	I715	D4
2694	E3	I717	E2
2698	F3	I719	B3
2699	F4	I720	B4
2700	D1	I721	A5
2701	D1	I722	B5
2702	E1	I723	C9
2703	E1	I724	C9
2704	B2	I725	D9
2705	B2	I726	D9
3681	B6	I727	E4
3682	D2	S698	F2
3683	A5	S699	F2
3684	A5		
3686	A6		
3687	A5		
3689	D5		
3691	D2		
3693	B3		
3694	E4		
3696	B4		
3697	B4		
3698	F2		
3699	F2		
3700	F3		
3701	F4		
3702	A2		
3704	E5		
3705	E5		
3706	B5		
3707	C5		
3708	E6		
3710	D2		
3711	E2		
5683	A5		
5684	A5		
5686	A4		
5687	A5		
5692	D4		
6691	D3		
6692	D4		
6693	A3		
7693	C2		
7694	E2		
I680	C9		
I681	C9		
I682	A2		
I683	A2		
I684	A2		
I685	D9		
I686	D9		
I687	A1		
I688	A2		
I690	D9		
I691	D9		
I692	E9		
I693	E9		
I694	E9		
I695	E9		
I696	E9		
I697	E9		
I698	E9		
I699	E9		
I700	E9		

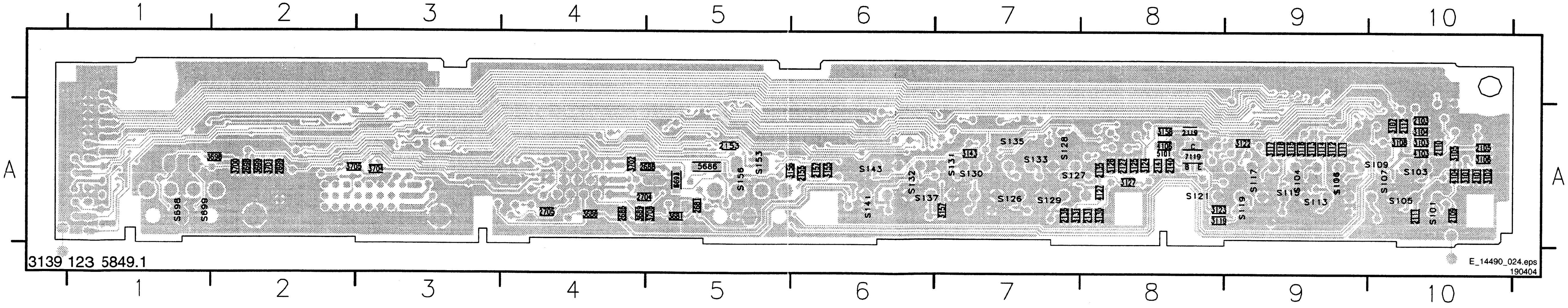
Layout Rear IO Panel (17") (Top Side)

1101	A2
1102	A4
1103	A2
1104	A10
1105	A6
1107	A9
1680	A8
1687	A7
1688	A10
1698	A5
2102	A1
2104	A1
2106	A1
2107	A1
2108	A1
2126	A3
2128	A3
2129	A4
2130	A3
2132	A4
2133	A4
2134	A3
2137	A4
2138	A3
2147	A6
2148	A6
2152	A6
2169	A3
2683	A7
2684	A7
2687	A7
2693	A7
2694	A7
2700	A9
2701	A8
2702	A9
2703	A8
3109	A1
3110	A1
3121	A3
3128	A3
3129	A3
3132	A4
3133	A4
3134	A4
3135	A4
3136	A4
3137	A4
3138	A3
3139	A3
3140	A3
3141	A3
3142	A4
3152	A6
3153	A6
3169	A3
3682	A8
3683	A7
3684	A7
3687	A7
3691	A8
3693	A7
3694	A7
3696	A7
3697	A6
3706	A6
3707	A6
3710	A8
3711	A8
4105	A3
4128	A4
5683	A7
5684	A7
5687	A7
5692	A8
6121	A3
6143	A4
6691	A8
6692	A8
7138	A3
7693	A7
7694	A7

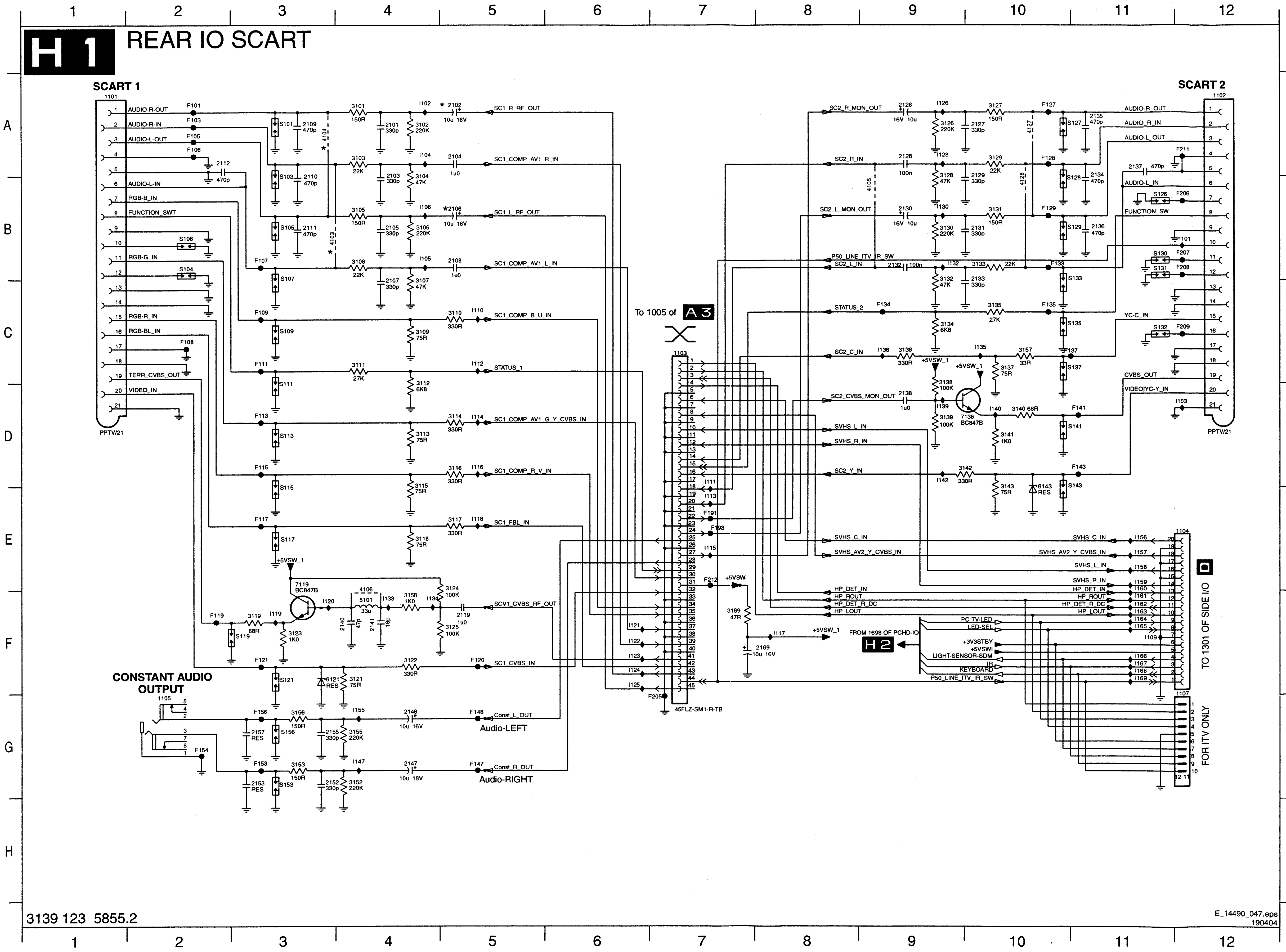

1
2
3
4
5
6
7
8
9
10
A
1103
1698
1107
1105
1687
1680
1688
3139 123 5849.1
E_14490_023.eps
190404

Layout Rear IO Panel(17") (Bottom Side)

2105	A10
2109	A10
2110	A10
2119	A8
2127	A8
2131	A8
2140	A8
2141	A8
2153	A5
2681	A5
2686	A4
2688	A5
2704	A4
2705	A4
3101	A10
3104	A10
3105	A10
3106	A10
3111	A9
3112	A9
3113	A9
3116	A9
3117	A9
3118	A9
3123	A8
3124	A8
3125	A8
3130	A8
3131	A7
3143	A7
3157	A7
3158	A8
3681	A5
3698	A2
3699	A2
3700	A2
3704	A3
3705	A2
3708	A5
4106	A8
4127	A8
5101	A8
7119	A8

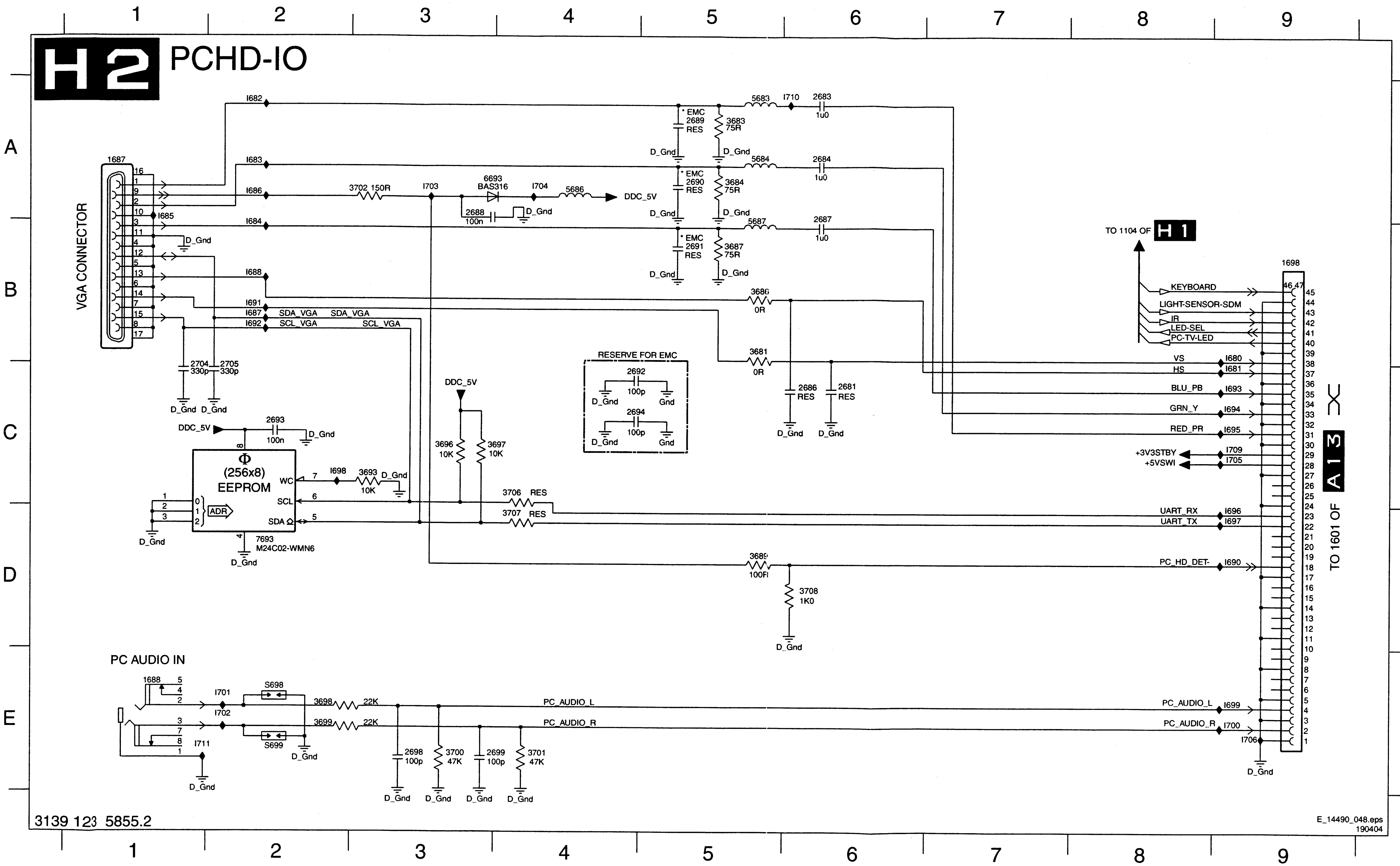

1
2
3
4
5
6
7
8
9
10
A
3139 123 5849.1
E_14490_024.eps
190404

Rear IO Panel: Scart (23"/26")


H 1
REAR IO SCART
SCART 1
SCART 2
AUDIO-R-OUT
AUDIO-R-IN
AUDIO-L-OUT
AUDIO-L-IN
RGB-B_IN
FUNCTION_SWT
RGB-G_IN
RGB-R_IN
RGB-BL_IN
TERR_CVBS_OUT
VIDEO_IN
PPTV/21
SC1_R_RF_OUT
SC1_COMP_AV1_R_IN
SC1_L_RF_OUT
SC1_COMP_AV1_L_IN
SC1_COMP_B_U_IN
STATUS_1
SC1_COMP_AV1_G_Y_CVBS_IN
SC1_COMP_R_V_IN
SC1_FBL_IN
SCV1_CVBS_RF_OUT
SC1_CVBS_IN
7119 BC847B
CONSTANT AUDIO OUTPUT
Const_L_OUT
Audio-LEFT
Const_R_OUT
Audio-RIGHT
To 1005 of A3
45FLZ-SM1-R-TB
SC2_R_MON_OUT
SC2_R_IN
SC2_L_MON_OUT
P50_LINE_ITV_IR_SW
SC2_L_IN
STATUS_2
SC2_C_IN
SC2_CVBS_MON_OUT
SVHS_L_IN
SVHS_R_IN
SC2_Y_IN
7138 BC847B
AUDIO-R_OUT
AUDIO_R_IN
AUDIO-L_OUT
AUDIO-L_IN
FUNCTION_SW
YC-C_IN
CVBS_OUT
VIDEO/YC-Y_IN
SVHS_C_IN
SVHS_AV2_Y_CVBS_IN
SVHS_L_IN
SVHS_R_IN
HP_DET_IN
HP_ROUT
HP_DET_R_DC
HP_LOUT
PC-TV-LED
LED-SEL
+3V3STBY
+5VSWI
LIGHT-SENSOR-SDM
IR
KEYBOARD
P50_LINE_ITV_IR_SW
FROM 1698 OF PCHD-IO
H 2
TO 1301 OF SIDE I/O
D
FOR ITV ONLY
+5VSW
+5VSW_1
3139 123 5855.2
E_14490_047.eps
190404

1101	A1
1102	A12
1103	C7
1104	E12
1105	G2
1107	G12
2101	A4
2102	A5
2103	B4
2104	A5
2105	B4
2106	B5
2107	C4
2108	B5
2109	A3
2110	B3
2111	B3
2112	A2
2119	F5
2126	A9
2127	A10
2128	A9
2129	B10
2130	B9
2131	B10
2132	B9
2133	C10
2134	B11
2135	A11
2136	B11
2137	A11
2138	D9
2140	F4
2141	F4
2147	G4
2148	G4
2152	G3
2153	G3
2155	G3
2157	G3
2169	F7
3101	A4
3102	A4
3103	A4
3104	B4
3105	B4
3106	B4
3107	C4
3108	B4
3109	C4
3110	C5
3111	C4
3112	D4
3113	D4
3114	D5
3115	E4
3116	D5
3117	E5
3118	E4
3119	F3
3121	F4
3122	F4
3123	F3
3124	E5
3125	F5
3126	A9
3127	A10
3128	B9
3129	A10
3130	B9
3131	B10
3132	C9
3133	B10
3134	C9
3135	C10
3136	C9
3137	C10
3138	C9
3139	D9
3140	D10
3141	D10
3142	D10
3143	E10
3152	G4
3153	G3
3155	G4
3156	G3
3157	C10
3158	F4
3169	F7
4103	B3
4104	A3
4105	B9
4106	F4
4127	A10
4128	B10
5101	F4
6121	F3
6143	E10
7119	E3
7138	D9
F101	A2
F103	A2
F105	A2
F106	A2
F107	B3
F108	C2
F109	C3
F111	C3
F113	D3
F115	D3
F117	E3
F119	F2
F120	F5
F121	F3
F127	A10
F128	A10
F129	B10
F133	B10
F134	C9
F135	C10
F137	C11
F141	D11
F143	D11
F147	G5
F148	G5
F153	G3
F154	G2
F156	G3
F191	E7
F193	E7
F205	G7
F206	B12
F207	B12
F208	B12
F209	C12
F211	A12
F212	E7
I101	B12
I102	A4
I103	D12
I104	A4
I105	B4
I106	B4
I109	F11
I110	C5
I111	D7
I112	C5
I113	E7
I114	D5
I115	E7
I116	D5
I117	F8
I118	E5
I119	F3
I120	F3
I121	F6
I122	F6
I123	F6
I124	F6
I125	F6
I126	A9
I128	A9
I130	B9
I132	B9
I133	F4
I134	F4
I135	C10
I136	C9
I139	D9
I140	D10
I142	D9
I147	G4
I155	G4
I156	E11
I157	E11
I158	E11
I159	E11
I160	E11
I161	F11
I162	F11
I163	F11
I164	F11
I165	F11
I166	F11
I167	F11
I168	F11
I169	F11
S101	A3
S103	A3
S104	B2
S105	B3
S106	B2
S107	B3
S109	C3
S111	C3
S113	D3
S115	D3
S117	E3
S119	F3
S121	F3
S126	B11
S127	A11
S128	A11
S129	B11
S130	B11
S131	B11
S132	C11
S133	B11
S135	C11
S137	C11
S141	D11
S143	D11
S153	G3
S156	G3

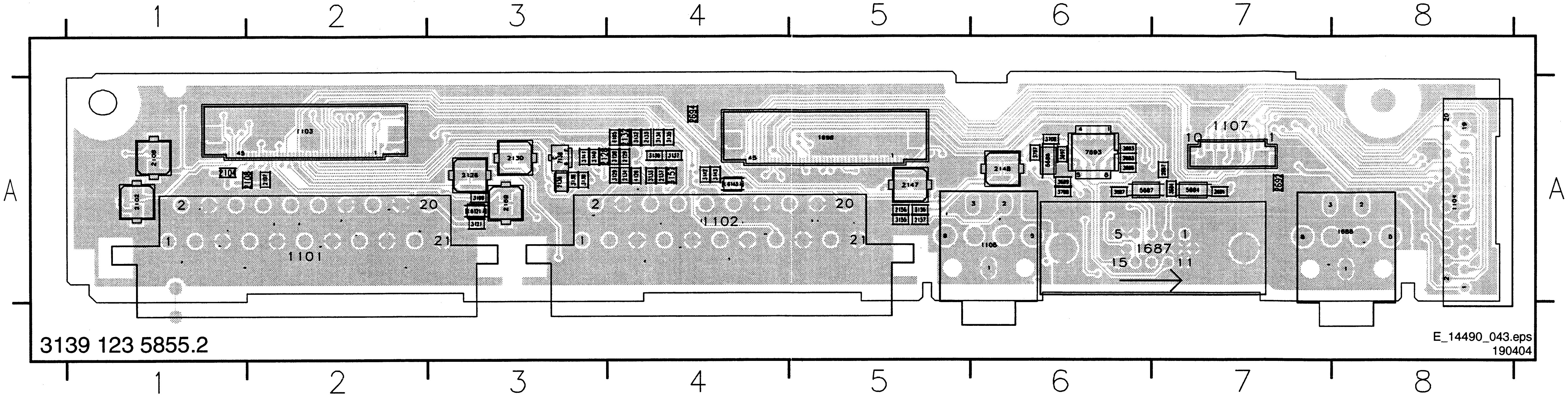
Rear IO Panel: PCHD-IO (23”/26”)


H2
PCHD-IO
VGA CONNECTOR
1687
PC AUDIO IN
1688
(256x8)
EEPROM
ADR
WC
SCL
SDA
7693
M24C02-WMN6
DDC_5V
D_Gnd
SDA_VGA
SCL_VGA
3702 150R
6693
BAS316
5686
RESERVE FOR EMC
2692 100p
2694 100p
EMC 2689 RES
EMC 2690 RES
EMC 2691 RES
3683 75R
3684 75R
3687 75R
3686 0R
3681 0R
2686 RES
2681 RES
3696 10K
3697 10K
3693 10K
3706 RES
3707 RES
3689 100R
3708 1K0
2704 330p
2705 330p
2693 100n
2688 100n
2683 1u0
2684 1u0
2687 1u0
3698 22K
3699 22K
2698 100p
3700 47K
2699 100p
3701 47K
S698
S699
TO 1104 OF H1
KEYBOARD
LIGHT-SENSOR-SDM
IR
LED-SEL
PC-TV-LED
VS
HS
BLU_PB
GRN_Y
RED_PR
+3V3STBY
+5VSWI
UART_RX
UART_TX
PC_HD_DET-
PC_AUDIO_L
PC_AUDIO_R
1698
TO 1601 OF A13
3139 123 5855.2
E_14490_048.eps
190404

1687	A1
1688	E1
1698	B9
2681	C6
2683	A6
2684	A6
2686	C6
2687	B6
2688	A3
2689	A5
2690	A5
2691	B5
2692	C4
2693	C2
2694	C4
2698	E3
2699	E4
2704	C1
2705	C2
3681	B5
3683	A5
3684	A5
3686	B5
3687	B5
3689	D5
3693	C3
3696	C3
3697	C4
3698	E2
3699	E2
3700	E3
3701	E4
3702	A3
3706	C4
3707	D4
3708	D6
5683	A5
5684	A5
5686	A4
5687	B5
6693	A3
7693	D2
I680	B9
I681	C9
I682	A2
I683	A2
I684	B2
I685	A1
I686	A2
I687	B2
I688	B2
I690	D9
I691	B2
I692	B2
I693	C9
I694	C9
I695	C9
I696	D9
I697	D9
I698	C2
I699	E9
I700	E9
I701	E2
I702	E2
I703	A3
I704	A4
I705	C9
I706	E9
I709	C9
I710	A6
I711	E1
S698	E2
S699	E2

Layout Rear IO Panel (23"/26") (Top Side)

1101	A2
1102	A4
1103	A2
1104	A8
1105	A6
1107	A7
1687	A7
1688	A8
1698	A5
2102	A1
2104	A1
2106	A1
2107	A2
2108	A2
2126	A3
2128	A3
2129	A4
2130	A3
2132	A4
2133	A4
2134	A4
2137	A4
2138	A3
2147	A5
2148	A6
2155	A5
2157	A5
2169	A3
2684	A7
2687	A7
2692	A7
2693	A6
2694	A4
3121	A3
3128	A4
3129	A4
3132	A4
3133	A4
3134	A4
3135	A4
3136	A4
3137	A4
3138	A3
3139	A3
3140	A3
3141	A3
3142	A4
3143	A4
3155	A5
3156	A5
3157	A4
3169	A3
3684	A7
3687	A6
3689	A6
3693	A6
3696	A6
3697	A6
3706	A6
3707	A6
3708	A6
4105	A4
4128	A4
5684	A7
5686	A6
5687	A6
6121	A3
6143	A4
7138	A3
7693	A6

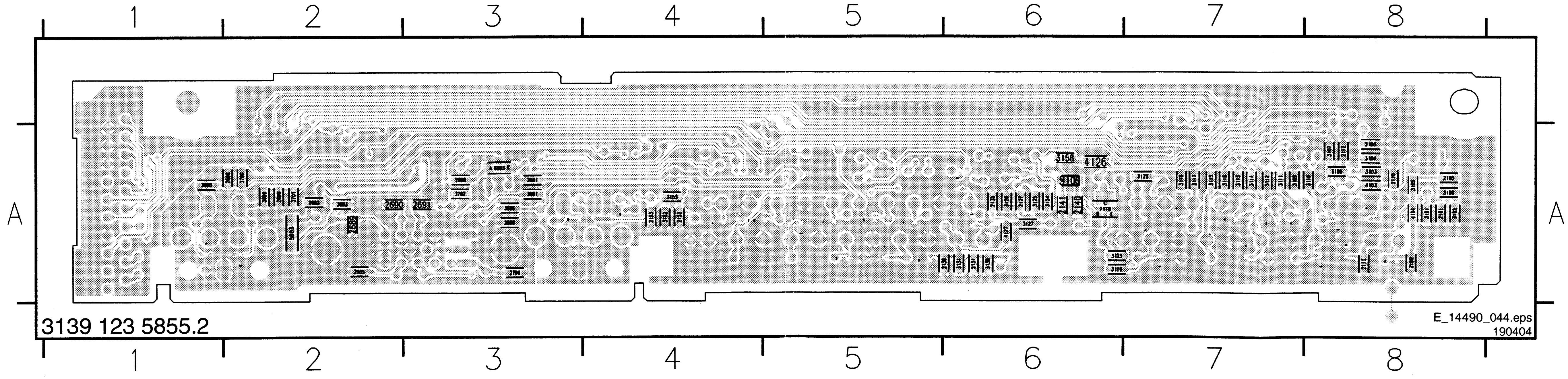


3139 123 5855.2

E_14490_043.eps
190404

Layout Rear IO Panel (23"/26") (Bottom Side)

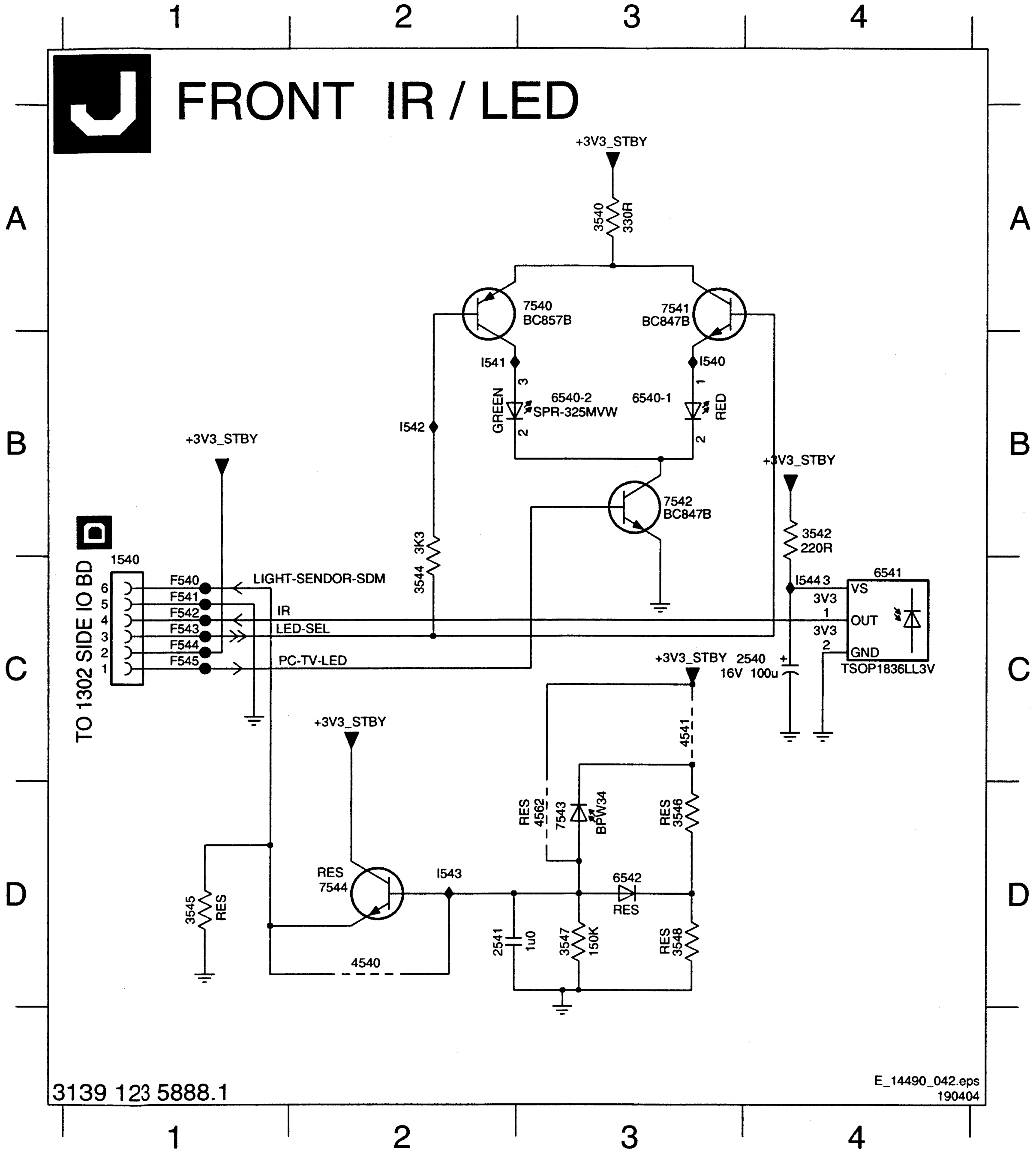
2101	A8
2103	A8
2105	A8
2109	A8
2110	A8
2111	A8
2112	A8
2127	A6
2131	A6
2135	A6
2136	A6
2140	A6
2141	A6
2152	A4
2153	A4
2681	A3
2683	A2
2686	A3
2688	A3
2689	A2
2690	A2
2691	A3
2698	A2
2699	A2
2704	A3
2705	A2
3101	A8
3102	A8
3103	A8
3104	A8
3105	A8
3106	A8
3107	A8
3108	A8
3109	A7
3110	A8
3111	A7
3112	A7
3113	A7
3114	A7
3115	A7
3116	A7
3117	A7
3118	A7
3119	A6
3122	A7
3123	A6
3124	A6
3125	A6
3126	A6
3127	A6
3130	A6
3131	A6
3152	A4
3153	A4
3158	A6
3681	A3
3683	A2
3686	A3
3698	A1
3699	A2
3700	A2
3701	A2
3702	A3
4103	A8
4104	A8
4106	A6
4126	A6
4127	A6
5101	A6
5683	A2
6693	A3
7119	A6



3139 123 5855.2

E_14490_044.eps
190404

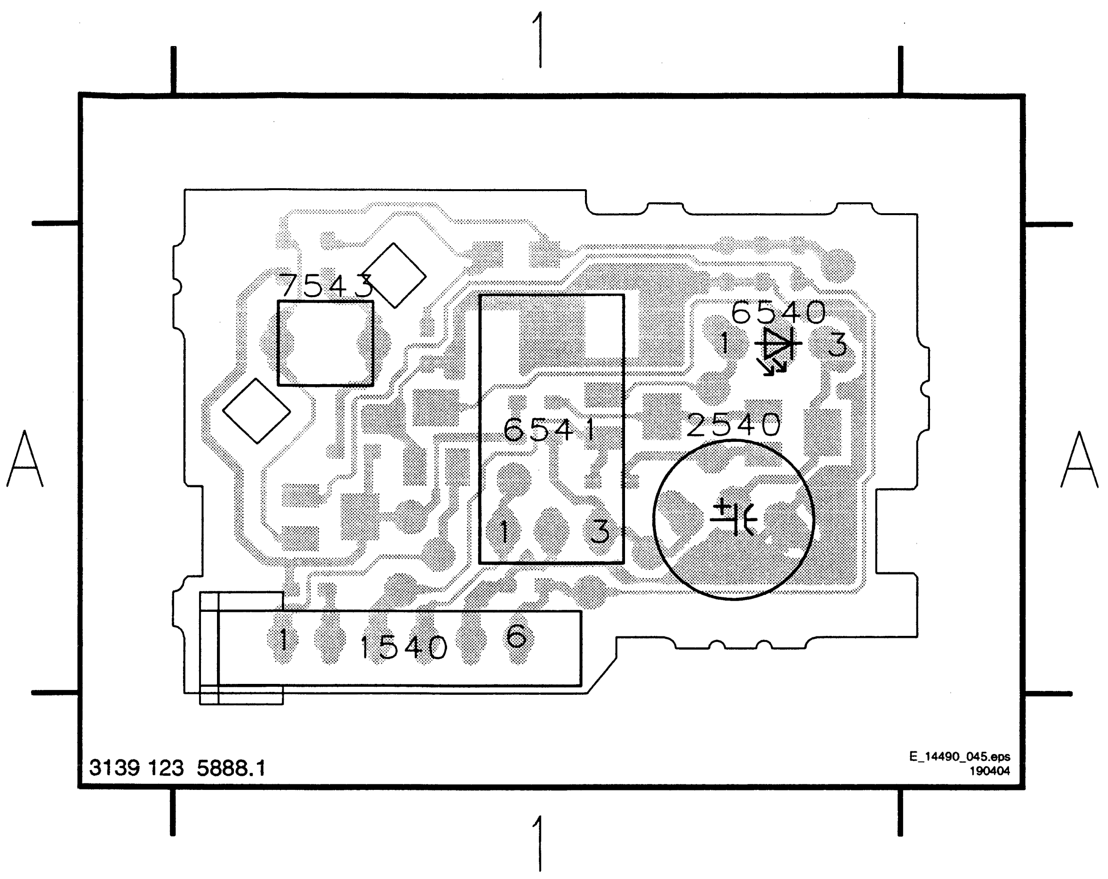
Front IR / LED Panel


J
FRONT IR / LED
1
2
3
4
A
B
C
D
+3V3_STBY
3540
330R
7540
BC857B
7541
BC847B
I541
I540
6540-2
SPR-325MVW
6540-1
GREEN
RED
I542
7542
BC847B
3544
3K3
3542
220R
I544
6541
VS
OUT
GND
3V3
TSOP1836LL3V
D
1540
TO 1302 SIDE IO BD
F540
F541
F542
F543
F544
F545
LIGHT-SENDOR-SDM
IR
LED-SEL
PC-TV-LED
2540
16V 100u
4541
RES
4562
7543
BPW34
3546
RES
7544
I543
6542
RES
3545
2541
1u0
3547
150K
3548
4540
3139 123 5888.1
E_14490_042.eps
190404

1540	B1
2540	C4
2541	D2
3540	A3
3542	B4
3544	C2
3545	D1
3546	D3
3547	D3
3548	D3
4540	D2
4541	C3
4562	D3
6540-1	B3
6540-2	B3
6541	C4
6542	D3
7540	A3
7541	A3
7542	B3
7543	D3
7544	D2
F540	C1
F541	C1
F542	C1
F543	C1
F544	C1
F545	C1
I540	B3
I541	B2
I542	B2
I543	D2
I544	C4

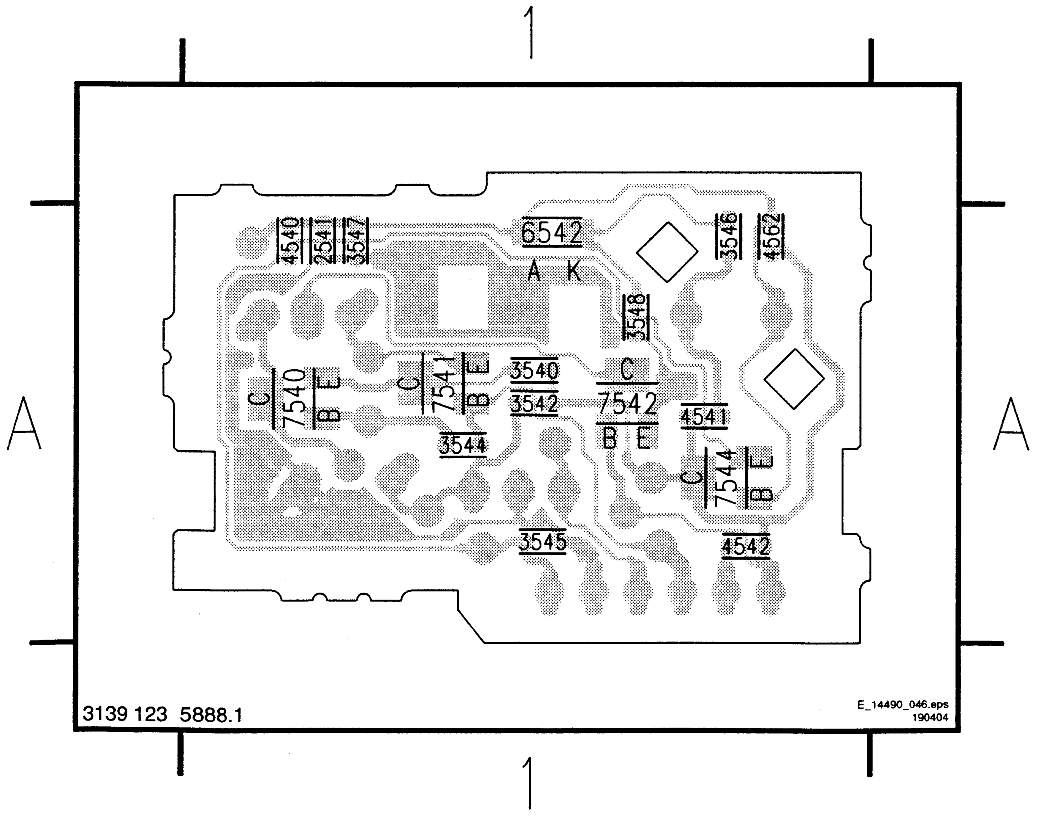
Layout Front IR / LED Panel (Top Side)

1540	A1	2540	A1	6540	A1	6541	A1	7543	A1

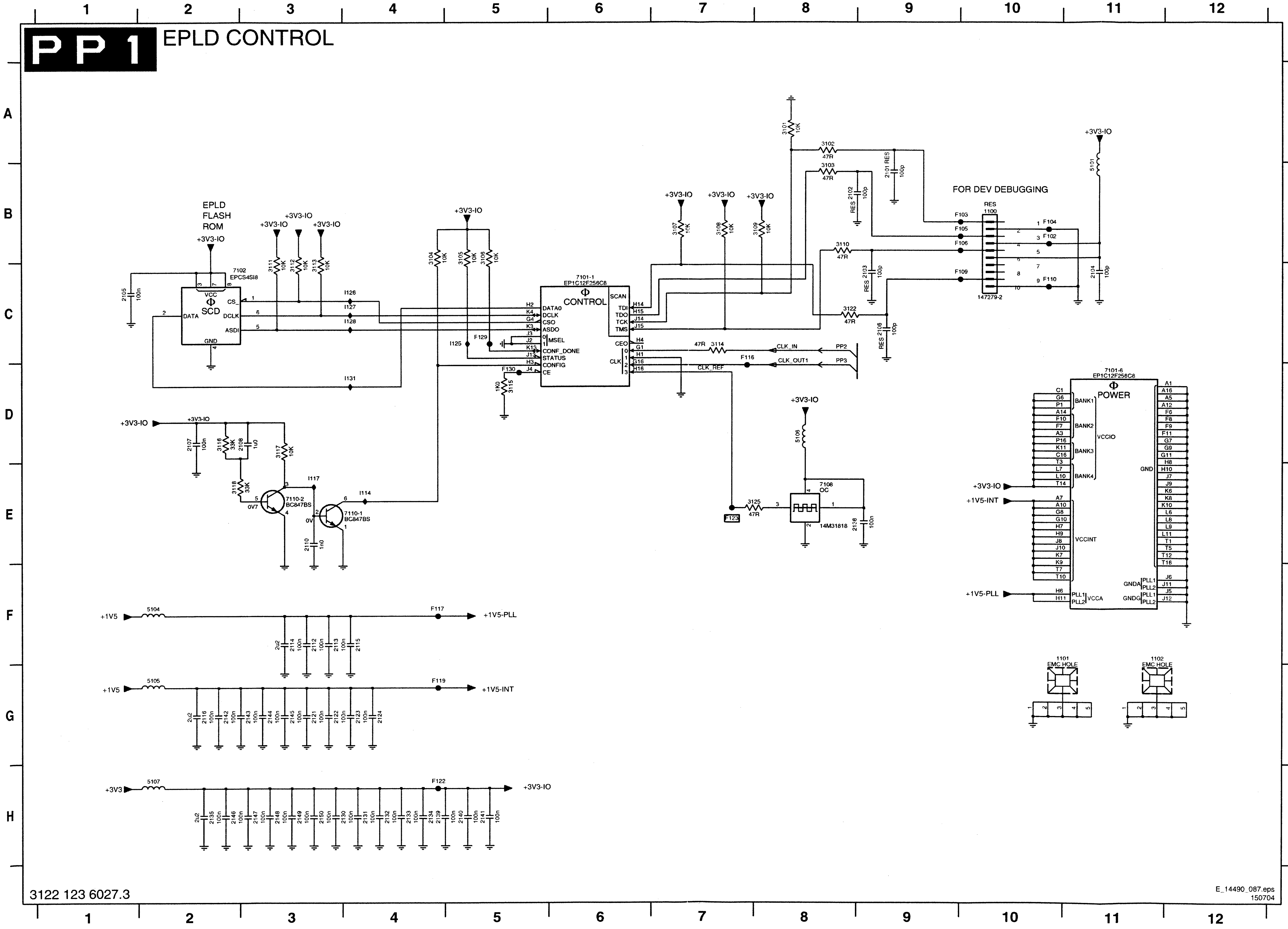

1
A
7543
6540
2540
6541
1540
3139 123 5888.1
E_14490_045.eps
190404

Layout Front IR / LED Panel (Bottom Side)

2541	A1	3544	A1	3547	A1	4541	A1	6542	A1	7542	A1
3540	A1	3545	A1	3548	A1	4542	A1	7540	A1	7544	A1
3542	A1	3546	A1	4540	A1	4562	A1	7541	A1		


1
A
4540
2541
3547
6542
A K
3546
4562
3548
7540
7541
3540
3542
3544
7542
4541
7544
3545
4542
3139 123 5888.1
E_14490_046.eps
190404

Pixel Plus Panel: EPLD Control

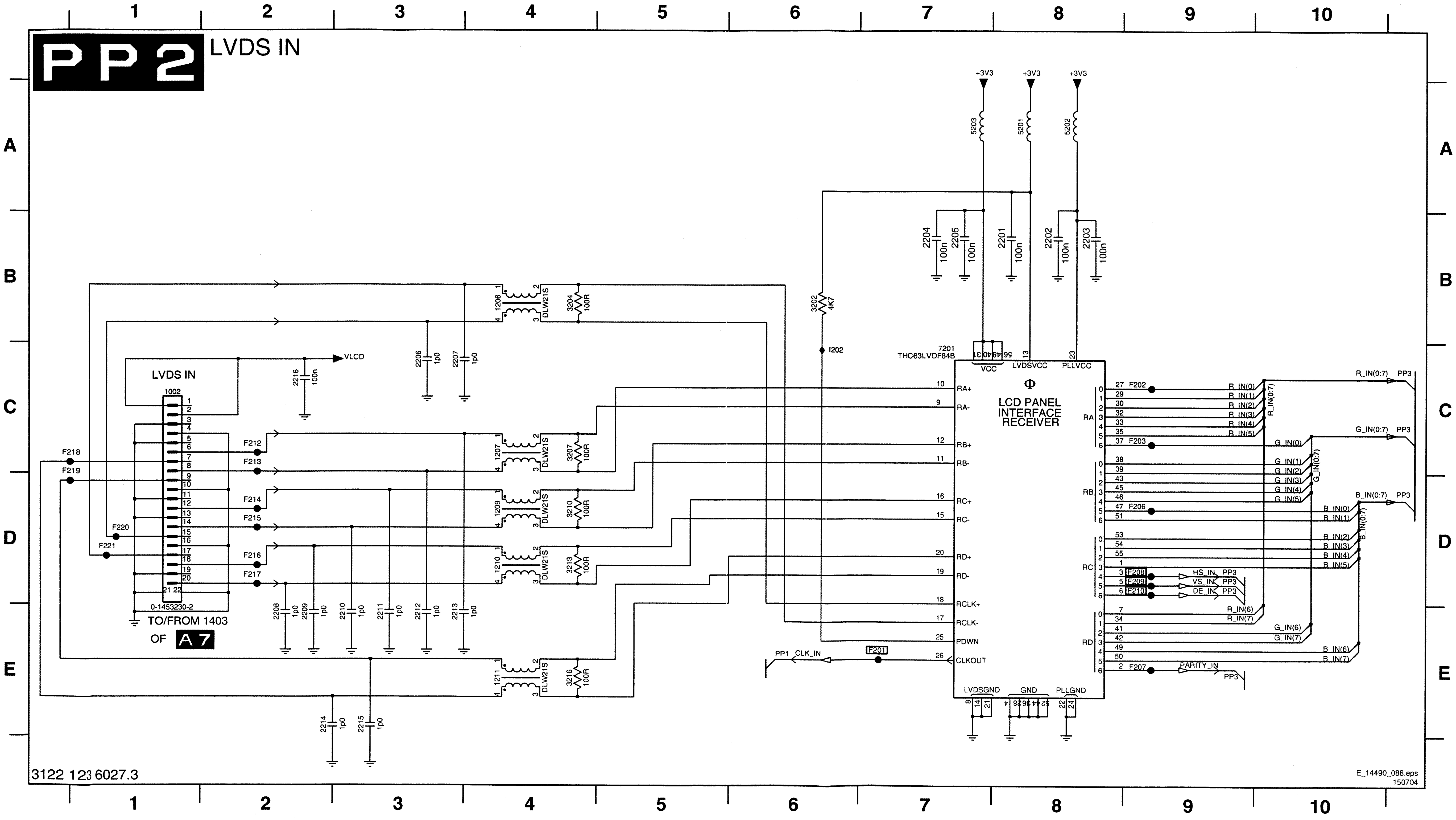

PP1 EPLD CONTROL
EPLD FLASH ROM
+3V3-IO
7102 EPCS4SI8
SCD
VCC
DATA
DCLK
CS_
ASDI
GND
2105 100n
3111 10K
3112 10K
3113 10K
3104 10K
3105 10K
3106 10K
I126
I127
I128
I131
I125
F129
F130
3115 1K0
7101-1 EP1C12F256C8
CONTROL
DATA0
DCLK
CSO
ASDO
MSEL
CONF_DONE
STATUS
CONFIG
CE
SCAN
TDI
TDO
TCK
TMS
CEO
CLK
3107 10K
3108 10K
3109 10K
3101 10K
3102 47R
3103 47R
2102 RES 100p
2101 RES 100p
FOR DEV DEBUGGING
RES 1100
147279-2
F102
F103
F104
F105
F106
F109
F110
3110 47R
2103 RES 100p
3122 47R
2106 RES 100p
2104 100p
5101
3114 47R
CLK_IN
CLK_OUT1
CLK_REF
F116
PP2
PP3
2107 100n
3116 33K
2108 1u0
3117 10K
3118 33K
7110-2 BC847BS
7110-1 BC847BS
0V7
0V
I117
I114
2110 1n0
5106
7108 OC
14M31818
3125 47R
F123
2136 100n
7101-6 EP1C12F256C8
POWER
BANK1
BANK2
BANK3
BANK4
VCCIO
VCCINT
GND
GNDA
GNDG
VCCA
PLL1
PLL2
+3V3-IO
+1V5-INT
+1V5-PLL
1101 EMC HOLE
1102 EMC HOLE
+1V5
5104
F117
2114 2u2
2112 100n
2113 100n
2115 100n
5105
F119
2116 2u2
2142 100n
2143 100n
2144 100n
2145 100n
2121 100n
2122 100n
2123 100n
2124
+3V3
5107
F122
2135 2u2
2146 100n
2147 100n
2148 100n
2149 100n
2150 100n
2130 100n
2131 100n
2132 100n
2133 100n
2134 100n
2139 100n
2140 100n
2141 100n
E_14490_087.eps 150704

3122 123 6027.3

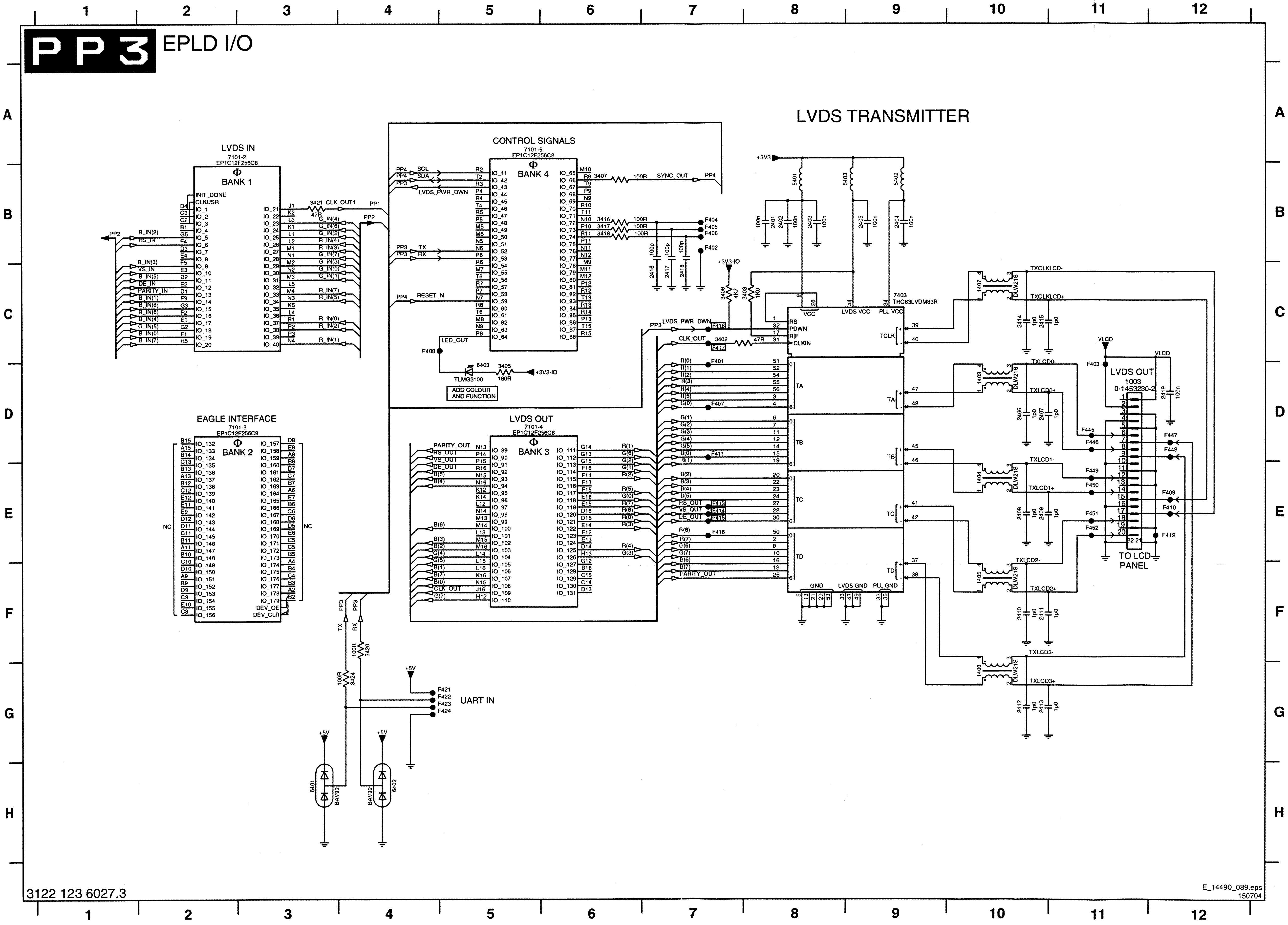
1100	B10
1101	F11
1102	F11
2101	B9
2102	B8
2103	C9
2104	C11
2105	C1
2106	C9
2107	D2
2108	D3
2110	E3
2112	F3
2113	F3
2114	F3
2115	F4
2116	G2
2121	G3
2122	G3
2123	G4
2124	G4
2130	H3
2131	H4
2132	H4
2133	H4
2134	H4
2135	H2
2136	E9
2139	H4
2140	H5
2141	H5
2142	G2
2143	G3
2144	G3
2145	G3
2146	H2
2147	H3
2148	H3
2149	H3
2150	H3
3101	A8
3102	A8
3103	B8
3104	B4
3105	B5
3106	B5
3107	B7
3108	B7
3109	B8
3110	B8
3111	C3
3112	C3
3113	C3
3114	C7
3115	D5
3116	D2
3117	D3
3118	E2
3122	C8
3125	E8
5101	B11
5104	F2
5105	G2
5106	D8
5107	H2
7101-1	C6
7101-6	D11
7102	C2
7108	E8
7110-1	E4
7110-2	E3
F102	B10
F103	B10
F104	B10
F105	B10
F106	B10
F109	C10
F110	C10
F116	C7
F117	F4
F119	G4
F122	H4
F123	E7
F129	C5
F130	D5
I114	E4
I117	E3
I125	C5
I126	C4
I127	C4
I128	C4
I131	D4

Pixel Plus Panel: LVDS In

1002	C1
1206	B4
1207	C4
1209	D4
1210	D4
1211	E4
2201	B8
2202	B8
2203	B8
2204	B7
2205	B7
2206	C3
2207	C3
2208	E2
2209	E2
2210	E3
2211	E3
2212	E3
2213	E3
2214	E2
2215	E3
2216	C2
3202	B6
3204	B4
3207	C4
3210	D4
3213	D4
3216	E4
5201	A8
5202	A8
5203	A7
7201	C7
F201	E7
F202	C9
F203	C9
F206	D9
F207	E9
F208	D9
F209	D9
F210	D9
F212	C2
F213	C2
F214	D2
F215	D2
F216	D2
F217	D2
F218	C1
F219	D1
F220	D1
F221	D1
I202	C6

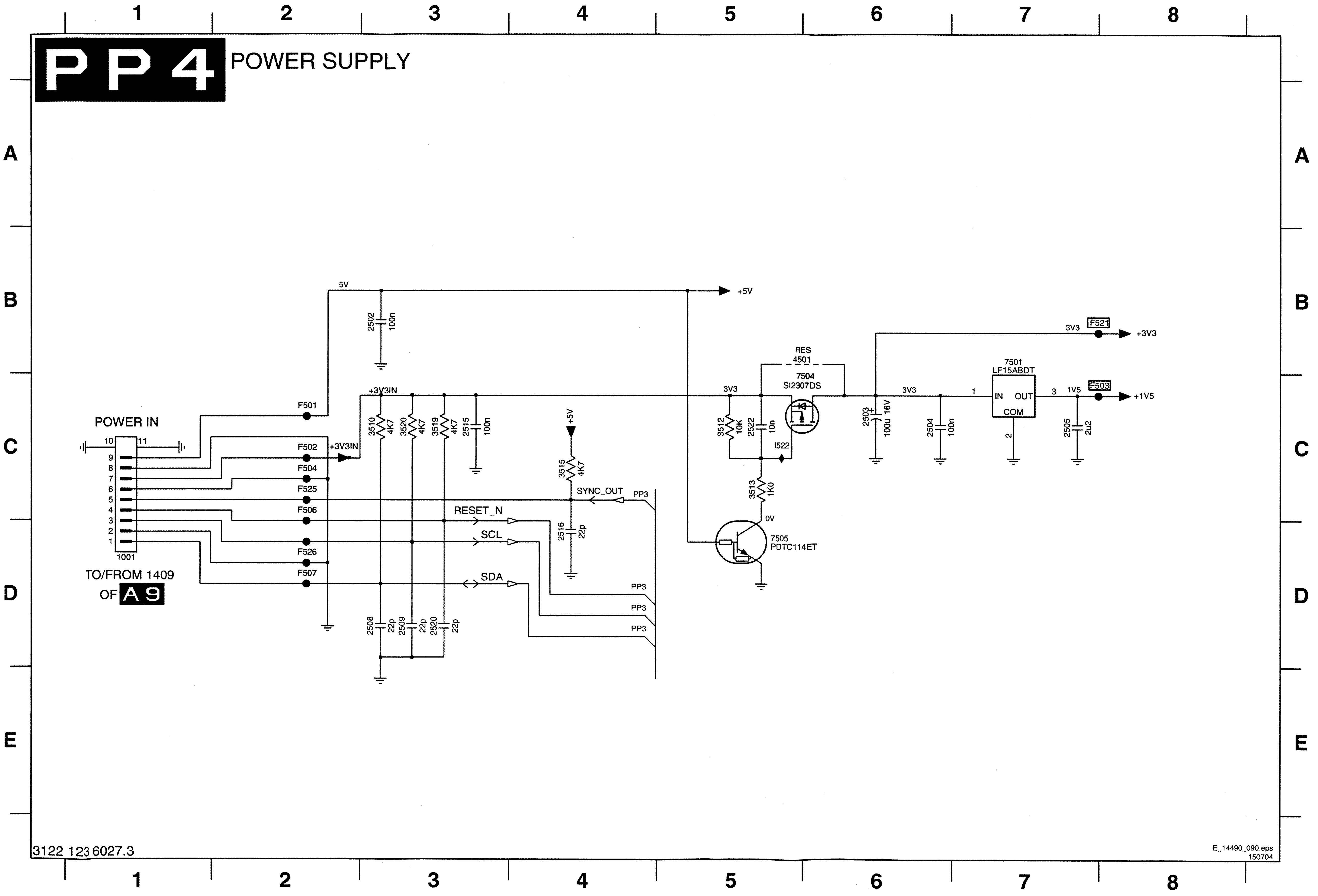

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
PP2
LVDS IN
+3V3
+3V3
+3V3
5203
5201
5202
2204 100n
2205 100n
2201 100n
2202 100n
2203 100n
3202 4K7
I202
7201
THC63LVDF84B
VCC
LVDSVCC
PLLVCC
LCD PANEL INTERFACE RECEIVER
Φ
RA+
RA-
RB+
RB-
RC+
RC-
RD+
RD-
RCLK+
RCLK-
PDWN
CLKOUT
LVDSGND
GND
PLLGND
RA
RB
RC
RD
F202
F203
F206
F207
F208
F209
F210
F201
R_IN(0)
R_IN(1)
R_IN(2)
R_IN(3)
R_IN(4)
R_IN(5)
R_IN(6)
R_IN(7)
R_IN(0:7)
G_IN(0)
G_IN(1)
G_IN(2)
G_IN(3)
G_IN(4)
G_IN(5)
G_IN(6)
G_IN(7)
G_IN(0:7)
B_IN(0)
B_IN(1)
B_IN(2)
B_IN(3)
B_IN(4)
B_IN(5)
B_IN(6)
B_IN(7)
B_IN(0:7)
HS_IN PP3
VS_IN PP3
DE_IN PP3
PARITY_IN PP3
PP3
PP1 CLK_IN
VLCD
LVDS IN
1002
0-1453230-2
TO/FROM 1403
OF A7
2216 100n
2206 1p0
2207 1p0
2208 1p0
2209 1p0
2210 1p0
2211 1p0
2212 1p0
2213 1p0
2214 1p0
2215 1p0
1206 DLW21S
1207 DLW21S
1209 DLW21S
1210 DLW21S
1211 DLW21S
3204 100R
3207 100R
3210 100R
3213 100R
3216 100R
F212
F213
F214
F215
F216
F217
F218
F219
F220
F221
3122 123 6027.3
E_14490_088.eps
150704

Pixel Plus Panel: EPLD I/O


PP3
EPLD I/O
LVDS TRANSMITTER
LVDS IN
7101-2
EP1C12F256C8
BANK 1
CONTROL SIGNALS
7101-5
EP1C12F256C8
BANK 4
EAGLE INTERFACE
7101-3
EP1C12F256C8
BANK 2
LVDS OUT
7101-4
EP1C12F256C8
BANK 3
7403
THC63LVDM83R
LVDS OUT
1003
0-1453230-2
TO LCD PANEL
UART IN
ADD COLOUR AND FUNCTION
TLMG3100
BAV99
+3V3
+3V3-IO
+5V
VLCD
3122 123 6027.3
E_14490_089.eps
150704

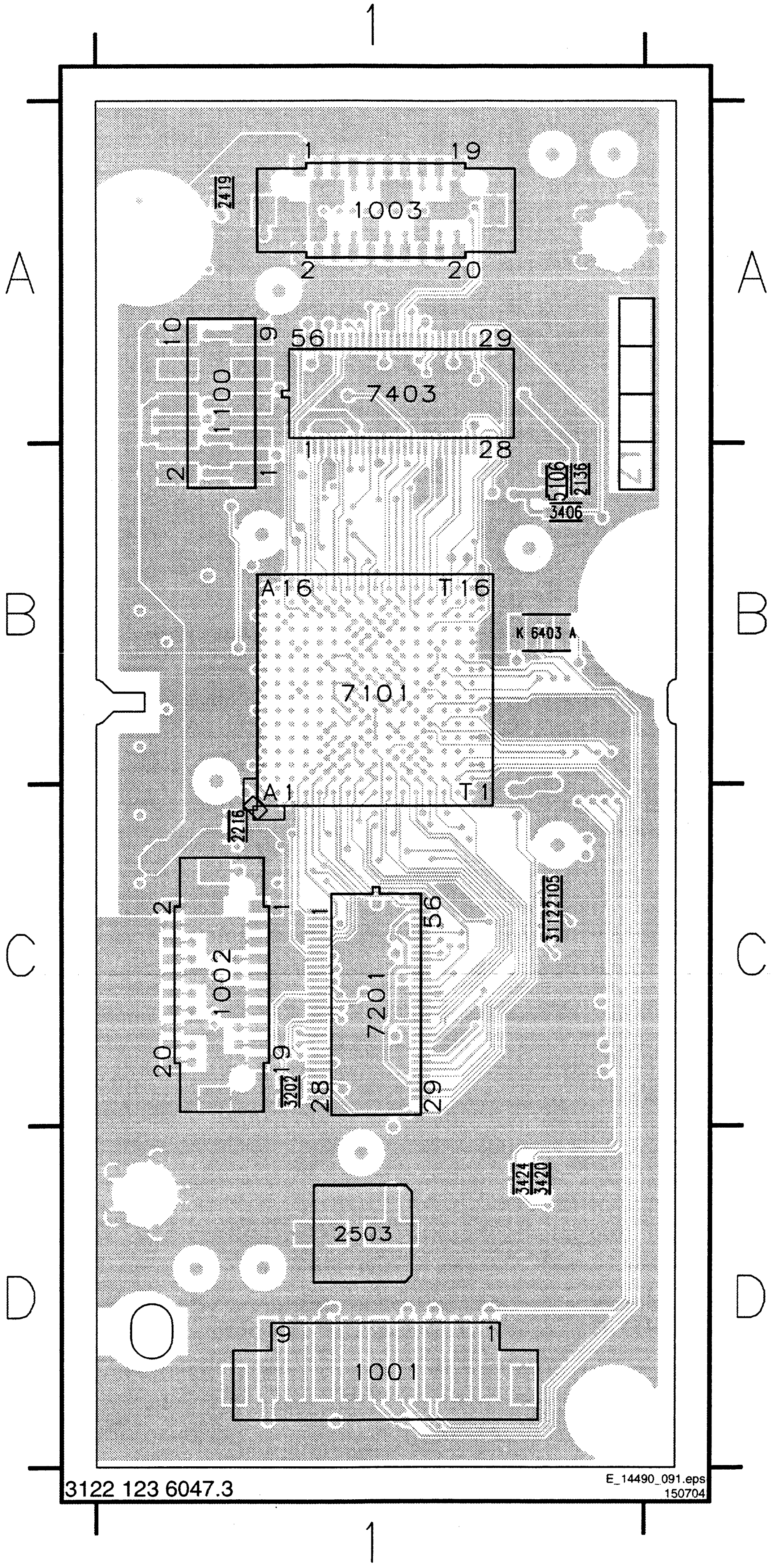
1003	D11
1403	D10
1404	E10
1405	F10
1406	G10
1407	C10
2401	B8
2402	B8
2403	B8
2404	B9
2405	B9
2406	D10
2407	D10
2408	E10
2409	E10
2410	F10
2411	F10
2412	G10
2413	G10
2414	C10
2415	C10
2416	C7
2417	C7
2418	C7
2419	D12
3402	C7
3403	C8
3405	D5
3406	C7
3407	B6
3416	B6
3417	B6
3418	B6
3420	F4
3421	B3
3424	G4
5401	B8
5402	B9
5403	B9
6401	H3
6402	H4
6403	D5
7101-2	A3
7101-3	D3
7101-4	D5
7101-5	A5
7403	C9
F401	D7
F402	B7
F403	D11
F404	B7
F405	B7
F406	B7
F407	D7
F408	C4
F409	E12
F410	E12
F411	D7
F412	E12
F413	E7
F414	E7
F415	E7
F416	E7
F417	C7
F418	C7
F421	G5
F422	G5
F423	G5
F424	G5
F445	D11
F446	D11
F447	D12
F448	D12
F449	E11
F450	E11
F451	E11
F452	E11

Pixel Plus Panel: Power Supply


PP4 POWER SUPPLY
1 2 3 4 5 6 7 8
A B C D E
POWER IN
1001
TO/FROM 1409
OF A9
10
11
9 8 7 6 5 4 3 2 1
F501
F502
F504
F525
F506
F526
F507
+3V3IN
5V
+5V
2502 100n
3510 4K7
3520 4K7
3519 4K7
2515 100n
+5V
3515 4K7
SYNC_OUT
PP3
RESET_N
SCL
SDA
2516 22p
2508 22p
2509 22p
2520 22p
PP3
PP3
PP3
3V3
RES 4501
7504 SI2307DS
3512 10K
2522 10n
I522
3513 1K0
0V
7505 PDTC114ET
3V3 F521 +3V3
2503 100u 16V
3V3
2504 100n
7501 LF15ABDT
IN OUT COM
1 3 2
1V5 F503 +1V5
2505 2u2
3122 123 6027.3
E_14490_090.eps
150704

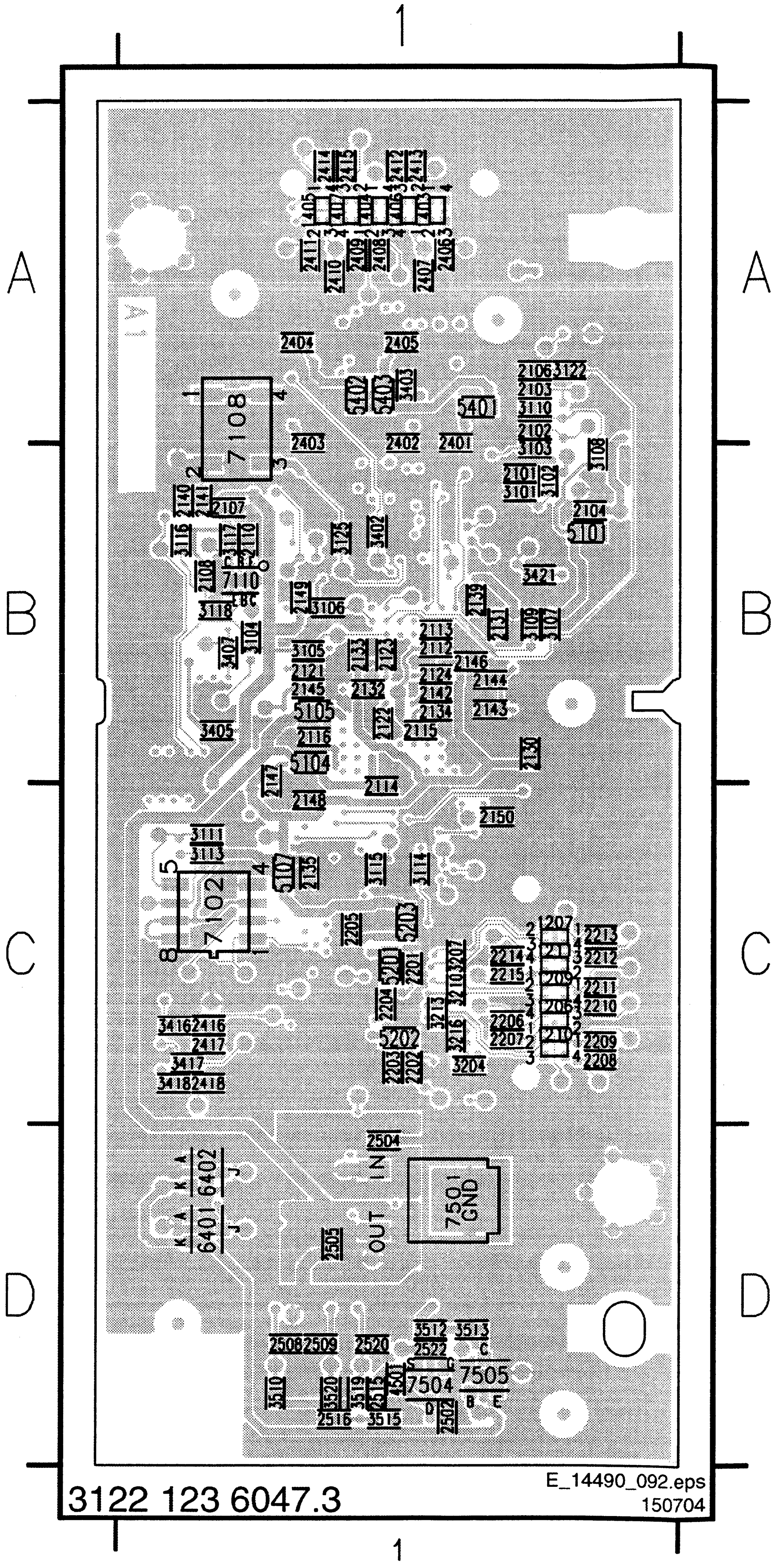
1001	D1
2502	B3
2503	C6
2504	C6
2505	C7
2508	D3
2509	D3
2515	C3
2516	D4
2520	D3
2522	C5
3510	C3
3512	C5
3513	C5
3515	C4
3519	C3
3520	C3
4501	B5
7501	B7
7504	C6
7505	D5
F501	C2
F502	C2
F503	C7
F504	C2
F505	C2
F506	C2
F507	D2
F521	B7
F525	C2
F526	D2
I522	C5

Layout Pixel Plus Panel (Top Side)


1
A
B
C
D
1003
1100
7403
7101
A16
T16
A1
T1
1002
7201
2503
1001
6403
3122 123 6047.3
E_14490_091.eps
150704

1001	D1
1002	C1
1003	A1
1100	A1
2105	C1
2136	B1
2216	C1
2419	A1
2503	D1
3112	C1
3202	C1
3406	B1
3420	D1
3424	D1
5106	B1
6403	B1
7101	B1
7201	C1
7403	A1

Layout Pixel Plus Panel (Bottom Side)


1
A
B
C
D
7108
7110
7102
7501
GND
IN
OUT
7504
7505
6401
6402
3122 123 6047.3
E_14490_092.eps
150704

1206	C1
1207	C1
1209	C1
1210	C1
1211	C1
1403	A1
1404	A1
1405	A1
1406	A1
1407	A1
2101	B1
2102	A1
2103	A1
2104	B1
2106	A1
2107	B1
2108	B1
2110	B1
2112	B1
2113	B1
2114	C1
2115	B1
2116	B1
2121	B1
2122	B1
2123	B1
2124	B1
2130	B1
2131	B1
2132	B1
2133	B1
2134	B1
2135	C1
2139	B1
2140	B1
2141	B1
2142	B1
2143	B1
2144	B1
2145	B1
2146	B1
2147	B1
2148	C1
2149	B1
2150	C1
2201	C1
2202	C1
2203	C1
2204	C1
2205	C1
2206	C1
2207	C1
2208	C1
2209	C1
2210	C1
2211	C1
2212	C1
2213	C1
2214	C1
2215	C1
2401	B1
2402	B1
2403	B1
2404	A1
2405	A1
2406	A1
2407	A1
2408	A1
2409	A1
2410	A1
2411	A1
2412	A1
2413	A1
2414	A1
2415	A1
2416	C1
2417	C1
2418	C1
2502	D1
2504	D1
2505	D1
2508	D1
2509	D1
2515	D1
2516	D1
2520	D1
2522	D1
3101	B1
3102	B1
3103	B1
3104	B1
3105	B1
3106	B1
3107	B1
3108	B1
3109	B1
3110	A1
3111	C1
3113	C1
3114	C1
3115	C1
3116	B1
3117	B1
3118	B1
3122	A1
3125	B1
3204	C1
3207	C1
3210	C1
3213	C1
3216	C1
3402	B1
3403	A1
3405	B1
3407	B1
3416	C1
3417	C1
3418	C1
3421	B1
3510	D1
3512	D1
3513	D1
3515	D1
3519	D1
3520	D1
4501	D1
5101	B1
5104	B1
5105	B1
5107	C1
5201	C1
5202	C1
5203	C1
5401	A1
5402	A1
5403	A1
6401	D1
6402	D1
7102	C1
7108	A1
7110	B1
7501	D1
7504	D1
7505	D1

Personal Notes:

E_06532_013.eps
200204

8. Alignments

General: The Service Default Mode (SDM) and Service Alignment Mode (SAM) are described in chapter 5. Menu navigation is done with the cursor Up, Down, Left or Right keys of the remote control transmitter.

8.1 General Alignment Conditions

Perform all electrical adjustments under the following conditions:
Mains voltage and frequency: 100-240 V / 50/60 Hz.
Allow the set to warm up for approximately 10 minutes.
Test probe: Ri > 10 M ohm; Ci < 2.5 pF.

8.2 Hardware Alignments

There are no hardware alignments foreseen for the LCD-TV.

8.3 Software Alignments

With the software alignments of the Service Alignment Mode (SAM) the geometry, white tone and tuner (IF) can be aligned. To store the data: Use the RC button Menu to switch to the main menu and next, switch to 'Stand-by' mode.

8.3.1 SAM Menu

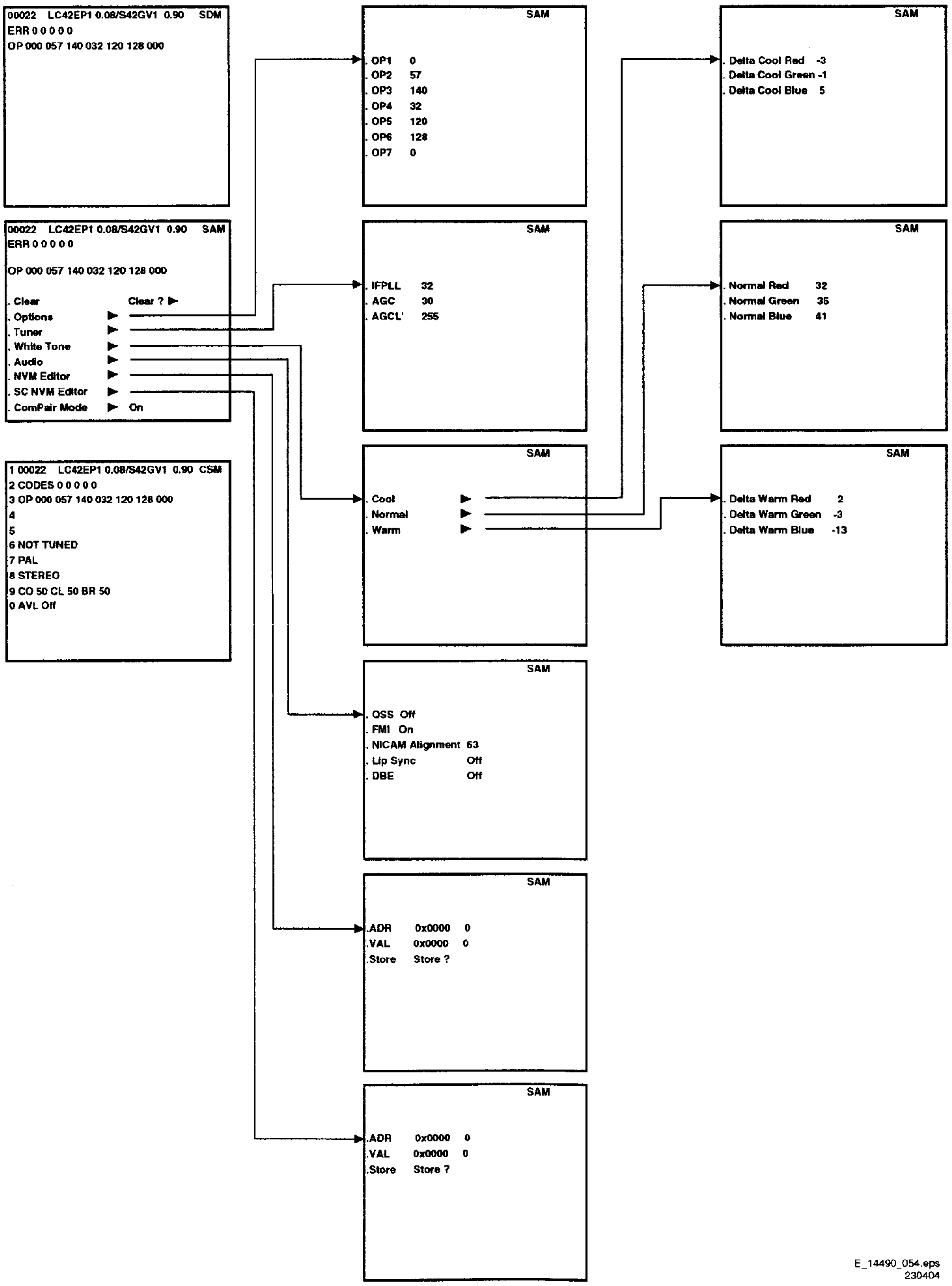

00022 LC42EP1 0.08/S42GV1 0.90 SDM
ERR 0 0 0 0 0
OP 000 057 140 032 120 128 000
00022 LC42EP1 0.08/S42GV1 0.90 SAM
ERR 0 0 0 0 0
OP 000 057 140 032 120 128 000
. Clear Clear ? ▶
. Options ▶
. Tuner ▶
. White Tone ▶
. Audio ▶
. NVM Editor ▶
. SC NVM Editor ▶
. ComPair Mode ▶ On
1 00022 LC42EP1 0.08/S42GV1 0.90 CSM
2 CODES 0 0 0 0 0
3 OP 000 057 140 032 120 128 000
4
5
6 NOT TUNED
7 PAL
8 STEREO
9 CO 50 CL 50 BR 50
0 AVL Off
SAM
. OP1 0
. OP2 57
. OP3 140
. OP4 32
. OP5 120
. OP6 128
. OP7 0
SAM
. IFPLL 32
. AGC 30
. AGCL' 255
SAM
. Cool ▶
. Normal ▶
. Warm ▶
SAM
. QSS Off
. FMI On
. NICAM Alignment 63
. Lip Sync Off
. DBE Off
SAM
.ADR 0x0000 0
.VAL 0x0000 0
.Store Store ?
SAM
.ADR 0x0000 0
.VAL 0x0000 0
.Store Store ?
SAM
. Delta Cool Red -3
. Delta Cool Green -1
. Delta Cool Blue 5
SAM
. Normal Red 32
. Normal Green 35
. Normal Blue 41
SAM
. Delta Warm Red 2
. Delta Warm Green -3
. Delta Warm Blue -13
E_14490_054.eps
230404

Figure 8-1 SAM Menu

8.3.2 White Tone

In the White Tone sub menu the colour values for the colour temperature values can be changed.
The colour temperature mode (Normal, Delta Cool, Delta Warm) or the colour (R, G, B) can be selected with the Right/ Left cursor keys. The mode or value can be changed with the Up/Down cursor keys.
First the values for the Normal colour temperature should be selected. Range: 0-255, 128 represent the middle of the value (no offset difference). Then the offset values for the Delta Cool and Delta Warm mode can be selected. Note that the alignment values are non-linear. The range is: -50 to +50, 0 represents the middle value, (no offset difference).

Input signal strength: >=10 mV rms (80 dBμV) terminal voltage.
Input injection point: Aerial input.

Alignment Method

Initial Set-up

- 12 minutes soaking time before carrying out Colour Temp alignment.
- Incredible Picture/Contrast+ and Active Control & Light Sensor must be switched Off for proper tracking.
- Set all colour temperature settings to their initial values, i.e. Red=135; Green=128; Blue=133.
- The offset values for Cool & Warm should be preloaded into NVM.
- The alignment is done for Normal only.

Method of alignments

1. Place the colour sensor of the meter at the centre of the screen with standard orientation (at 0 degree orientation).
2. Set the meter in (T, delta UV, Y) mode.
3. Set Brightness and Colour to nominal (Factory mode, Brightness 60).
4. Set Colour temp to normal.
5. Set Contrast to make the light output Y on the meter 250 nit +/-10%.
6. Set Green=128.
7. Adjust Red and Blue to bring delta UV and T to the value as in the table.
8. Repeat the procedure if necessary to obtain the values as in the table.

Expected Results

- Measured parameters: Refer to table,
- Specifications: Refer to table,
- Units of measurement: Kelvin.

Table 8-1 Colour temperatures

Colour temp.	NORMAL		COOL		WARM	
	T (K)	ΔUV	T (K)	ΔUV	T (K)	ΔUV
EUROPE	8500	-003	11500	-005	7000	-005
Tolerance	+/-10%	+/-003	+/-10%	+/-003	+/-10%	+/-003

8.3.3 Tuner Adjustment

AGC (RF AGC Take Over Point)
Set pattern generator (e.g. PM5580) with colour bar pattern and connect to aerial input with RF signal amplitude - 10mV and set frequency for PAL/SECAM to 475.25 MHz. For France select the L'-signal.

- Activate the SAM-menu. Go to the sub-menu Tuner, select the sub-menu option AFC Window and adjust the value to 100kHz.
- Select the AGC sub-menu.
- Connect a DC multi-meter to F306 pin1 of the tuner.
- Adjust the AGC until the voltage at pin 1 of the tuner is 3.3 Volts +0.5 / -1.0.
- The value can be incremented or decremented by pressing the right/left Menu-button on the RC.
- Switch the set to standby to store the data.

8.3.4 Grey Scale Adjustment

SDTV Grey Scale Adjustment

Equipment and setting

- E.g. Fluke 54200 or Philips PM5580.
- 100% "8-step grey scale" pattern.

Alignment Method

- Switch to TV mode,
- Press the MUTE button on RC,
- Set SMART PICTURE to SOFT mode,
- Activate the auto color function by pressing key-sequence: "INFO - MUTE - MUTE - MUTE - INFO - MENU - INFO"

Expected Results

- Visual check if the 8 Grey levels are correct.

Analog PC Grey Scale Adjustment

Equipment and setting

- Quantum Data 802B.
- PC input signal, with 64 levels Grey scale pattern, 1024x768 @ 60Hz (Format= 81:DMT1060, Pattern= 123:Grey 64).
- PC input at D-sub VGA connector.

Alignment Method

- Switch to "PC" mode.
- Press the MUTE button on RC.
- Set BRIGHTNESS and CONTRAST to nominal "50".
- Activate the auto color function by pressing key-sequence: "INFO - MUTE - MUTE - MUTE - INFO - MENU - INFO".

Expected Results

- Visual check if the 64 Grey levels are correct.

HD Grey Scale Adjustment

Equipment and setting

- Quantum Data 802B.
- HD input signal, Top half 100% color bar and bottom half Grey scale pattern,1920x1080i@60Hz YPbPr (Format= 1080i30, Pattern= HDBar100).
- HD input at D-sub VGA connector.

Alignment Method

- Switch to HD mode.
- Press the MUTE button on RC.
- Activate the auto color function by pressing key-sequence: "INFO - MUTE - MUTE - MUTE - INFO - MENU - INFO".

Expected Results

- Visual check if Color bar tint and Grey scale is correct.

8.3.5 Sound

No adjustments needed for sound.

The default values for the audio alignments are:

- QSS: On
- FMI: Off
- NICAM Alignment: 63
- Lip Sync: Off
- DBE: Off

8.3.6 Options

Options are used to control the presence/absence of certain features and hardware.

How to change an Option Byte

An Option Byte represents a number of different options. Changing these bytes directly makes it possible to set all options very fast. All options are controlled via seven option bytes. Select the option byte (OP1.. OP7) with the Menu Up/ Down keys, and enter the new value.

Leaving the OPTION submenu saves the changes in the Option Byte settings. Some changes will only take effect after the set has been switched “off” and “on” with the AC power switch (cold start).

Note: The option values mentioned in the table below are subject to change.

Table 8-2 Option values per model

	17PF9946/12		**23PF9946/12**		**26PF9946/12**	
Option Byte	**Total Dec Values**	**Total Hex Values**	**Total Dec Values**	**Total Hex Values**	**Total Dec Values**	**Total Hex Values**
OP1	154	9A	154	9A	154	9A
OP2	21	15	21	15	21	15
OP3	14	0E	14	0E	14	0E
OP4	17	11	17	11	17	11
OP5	252	FC	252	FC	252	FC
OP6	27	1B	27	1B	27	1B
OP7	3	03	3	03	3	03

	23PF9956/12		**26PF9956/12**	
Option Byte	**Total Dec Values**	**Total Hex Values**	**Total Dec Values**	**Total Hex Values**
OP1	154	9A	154	9A
OP2	21	15	21	15
OP3	14	0E	14	0E
OP4	17	11	17	11
OP5	252	FC	252	FC
OP6	27	1B	27	1B
OP7	3	03	3	03

9. Circuit Descriptions, Abbreviation List, and IC Data Sheets

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1. Introduction
2. Block Diagram
3. Power Supply
4. Input/Output
5. Tuner and IF
6. Video: TV Part
7. Video: Scaler Part
8. Audio Processing
9. Control
10. LCD Display
11. Abbreviation List
12. IC Data Sheets

9.1 Introduction

The LC4.2 LCD TV is a global LCD TV for the year 2004. It is the successor of the LC03 LCD TV and covers screens sizes 17, 23 and 26 inch (all in 16:9 ratio) and has a new styling, called Disc.
This chassis has the following (new) features:

- **Audio**: The sound processor is part of the UOC processor (called "Hercules"). The chassis has a FM Radio with 40 preset channels.
- **Video**: Enhanced video features, video drivers, Active Control and multiple PIP.

The architecture consists of a TV and Scaler panel, I/O panel, Side I/O and Local Keyboard panel and Power Supply panel. The functions for video/audio processing, microprocessor (P), and CC/Teletext (TXT) decoder are all combined in one IC (TDA120xx, item 7011), the so-called third generation Ultimate One Chip (UOC-III) or "Hercules". This chip has the following features:

- Control, small signal, mono/stereo, and extensive Audio/Video switching in one IC.
- Upgrade with digital sound & video processing.
- Alignment free IF, including SECAM-L/L1 and AM.
- FM sound 4.5/5.5/6.0/6.5, no traps/bandpass filters.
- Full multi-standard color decoder.
- One Xtal reference for all functions (microprocessor, RCP, TXT/CC, RDS, color decoder, and stereo sound processor).

9.2 Block Diagram

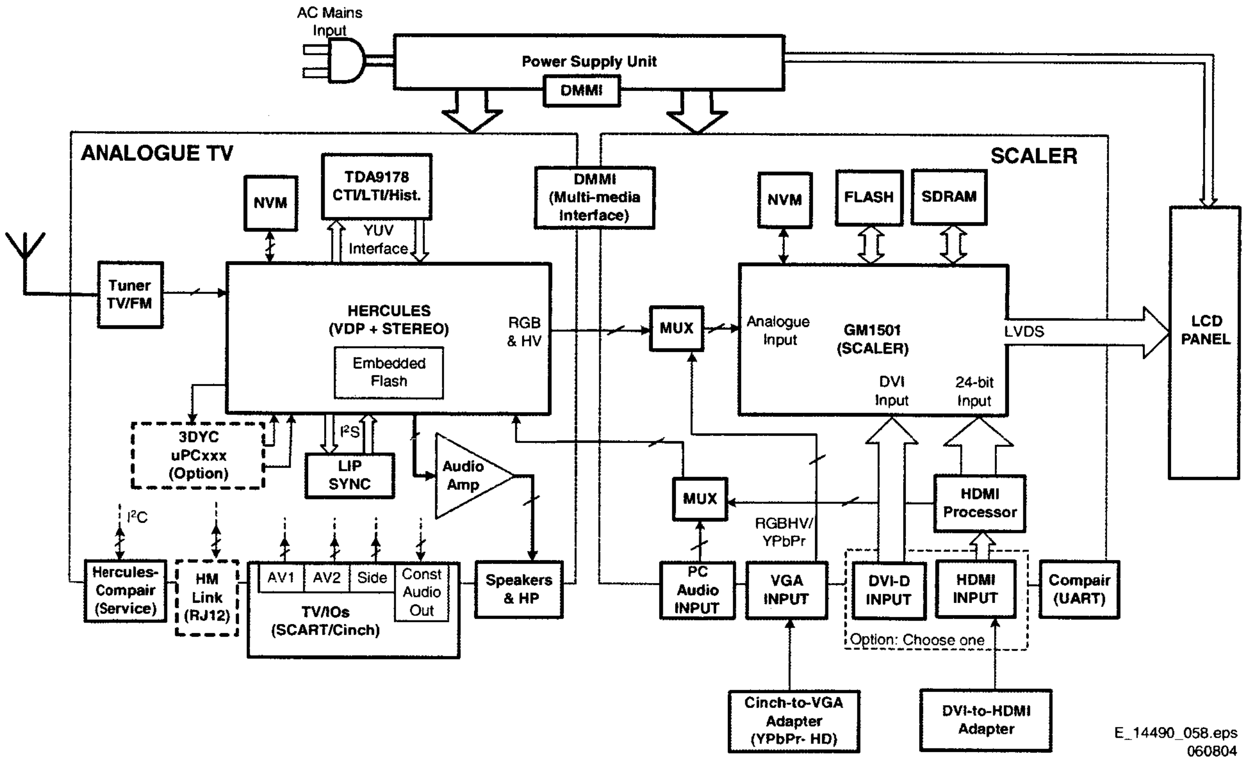

AC Mains Input
Power Supply Unit
DMMI
ANALOGUE TV
NVM
TDA9178 CTI/LTI/Hist.
YUV Interface
DMMI (Multi-media Interface)
SCALER
NVM
FLASH
SDRAM
Tuner TV/FM
HERCULES (VDP + STEREO)
Embedded Flash
RGB & HV
MUX
Analogue Input
GM1501 (SCALER)
LVDS
DVI Input
24-bit Input
LCD PANEL
3DYC uPCxxx (Option)
I²S
LIP SYNC
Audio Amp
MUX
HDMI Processor
RGBHV/ YPbPr
I²C
Hercules-Compair (Service)
HM Link (RJ12)
AV1
AV2
Side
Const Audio Out
TV/IOs (SCART/Cinch)
Speakers & HP
PC Audio INPUT
VGA INPUT
DVI-D INPUT
HDMI INPUT
Compair (UART)
Option: Choose one
Cinch-to-VGA Adapter (YPbPr- HD)
DVI-to-HDMI Adapter
E_14490_058.eps
060804

Figure 9-1 Block Diagram LC4.2

The PLL tuner UR1316 (with FM radio) delivers the IF-signal, via audio & video SAW-filters, to the Video Signal Processor and FLASH embedded TEXT/Control/Graphics Micro Controller TDA120x1 (item 7011, also called Hercules). This IC has the following functions:

- Analogue Video Processing
- Sound Demodulation
- Audio Interfaces and switching
- Volume and tone control for loudspeakers
- Reflection and delay for loudspeaker channels
- Micro Controller
- Data Capture
- Display

The Hercules has one input for the internal CVBS signal and a video switch with 3 external CVBS inputs and a CVBS output. All CVBS inputs can be used as Y-input for Y/C signals. However, only 2 Y/C sources can be selected because the circuit has 2 chroma inputs. It is possible to add an additional CVBS(Y)/C input (CVBS/YX and CX) when the YUV interface and the RGB/YPRPB input are not needed. Two SCART-connectors are used: SCART1 is fully equipped and SCART2 is meant for VCR. Pin 10 of SCART2 is used for Easylink (P50) and there is a possibility for Y/C in. The CVBS-out on pin 19 can be used for WYSIWYR (What You See Is What You Record).

The video part delivers the RGB signals to the Scaler IC.

The Genesis GM1501 Malibu Scaler IC can receive two video input signals: SDTV (from Hercules), DVI (from external DVI source), or PC (from external computer).
After the video processing, the digital data is send via a Low Voltage Differential Signalling bus to the LCD panel. LVDS is used to improve data speed and to reduce EMI significantly.
There are two I2C lines and two interrupt and communication lines (TV_IRQ and TV_SC_COM) for the Scaler control. The Scaler communicates with the Hercules as a slave device. To avoid buffer overflow at the Scaler side, the TV_SC_COM line provides the necessary hardware flow control. To allow bi-directional communication, the Scaler can initiate a service interrupt-request to the Hercules via the TV_IRQ line.

The Hercules, and EEPROM are supplied with 3.3 V, which is also present during STANDBY.
The EEPROM, or NVM (Non Volatile Memory) is used to store the settings.

The sound part is built up around the Hercules. The Source Selection, Decoding and Processing are all done by the Hercules.

Power supply input are several DC voltages coming from a supply panel.

9.3 Power Supply

For Service, this supply panel is a black box. When defect (this can be traced via the fault-finding tips, or by strange phenomena), a new panel must be ordered (see table below for ordering codes), and after receipt, the defective panel must be send for repair.

Table 9-1 Ordering Codes Power Supply

Screen size (inches)	Ordering Code
17	3122 137 23040
23	3122 137 23070
26	3122 137 23080

9.4 Input/Output

The I/O is divided over two parts: Rear I/O and Side I/O. The rear has two SCART inputs, a PC (VGA) input, a DVI input, and an Audio input. The side has a CVBS and Y/C (SVHS) input.

EXT1: The input of SCART1 is CVBS + RGB + L/R and the output is the video (+ sound) signal from the tuner (SC1_CVBS_RF_OUT).

EXT2: The input of SCART2 is Y/C + CVBS + L/R. The output signal is CVBS_SC2_MON_OUT (+ sound).
SCART2 is meant for VCR and has therefore some additional signals in relation to EXT1 but no RGB: it has the possibility for Y/C_in: Y_in on pin 20 and Chroma_in on pin 15.
The selection of the external I/O's is controlled by the Hercules.

PC (VGA) in: This input is directly going to the Scaler IC. See paragraph "Video: Scaler Part".

DVI-D in: This input is directly going to the Scaler IC. See paragraph "Video: Scaler Part".

9.5 Tuner and IF

A Philips UR13xx Tuner with second input (for FM Radio) is used in the TV board. The SIF and FM signals are decoded by the Hercules. Tuning is done via I2C.

9.5.1 Video IF amplifier

The IF-filter is integrated in a SAW (Surface Acoustic Wave) filter. One for filtering IF-video (1328) and one for IF-audio (1330). The type of these filters is depending of the standard(s) that has to be received.

The output of the tuner is controlled via an IF-amplifier with AGC-control. This is a voltage feedback from pin 31 of the Hercules to pin 1 of the tuner. The AGC-detector operates on top sync and top white level. AGC take-over point is adjusted via the service alignment mode 'Tuner' - 'AGC'. If there is too much noise in the picture, then it could be that the AGC setting is wrong. The AGC-setting could also be mis-aligned if the picture deforms with perfect signal; the IF-amplifier amplifies too much.

9.6 Video: TV Part (diagrams A1, A2, and A3)

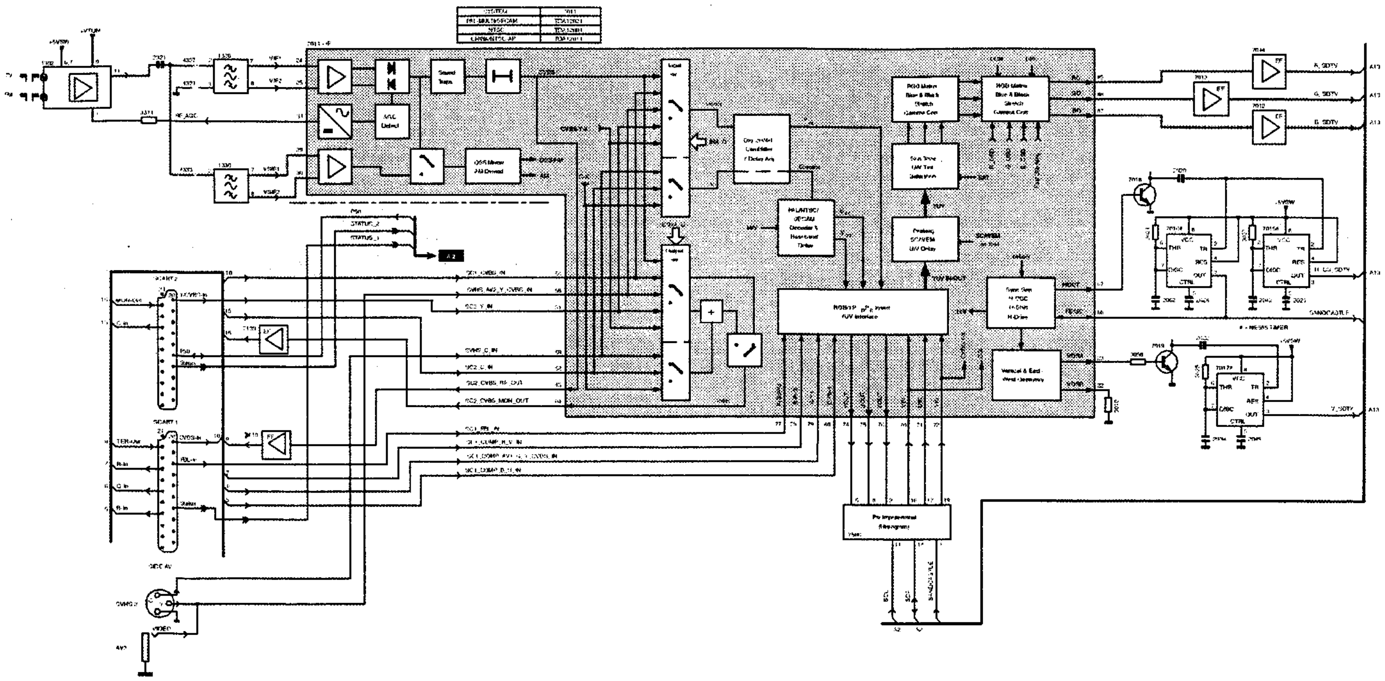


Figure 9-2 Block diagram video processing

The video processing is completely handled by the Hercules

- IF demodulator.
- Chrominance decoder
- Sync separator.
- Horizontal & vertical drive.
- RGB processing.
- CVBS and SVHS source select.

It has also build in features like:

- CTI.
- Black stretch.
- Blue stretch.
- White stretch.
- Slow start up.
- Dynamic skin tone correction etc.

Further, it also incorporates sound IF traps and filters, and requires only one crystal for all systems.

9.6.1 Histogram (YUV picture improvement) IC

The demodulated video-signal can be checked on pins 74, 75, and 76 of IC7011 and is fed to pins 70, 71, and 72. In this path, the Histogram IC TDA9171 is inserted.
This TDA9178 can control various picture improvements:

- Histogram processing.
- Colour transient improvement.
- Luminance transient improvement.
- Black and white stretch.
- Skin tone correction.
- Green enhancement.
- Blue stretch.
- Smart peaking.
- Video dependent coring.
- Colour dependent stretching.

Since the TDA9171 is connected to the Hercules, picture improvement works only for signals that are routed trough the Hercules and not for signals directly connected to the Scaler.

9.7 Video: Scaler Part (diagram A7 and A13)

The Genesis gm1501 Scaler is a dual channel graphics and video processing IC for LCD monitors and televisions incorporating Picture in Picture, up to SXGA output resolutions. The Scaler controls the display processing in an LCD TV, e.g. like the deflection circuit in a CRT-based TV. It controls all the view modes (e.g. like "zooming" and "shifting"). Features like PC (VGA) or HD inputs, are also handled by this part.

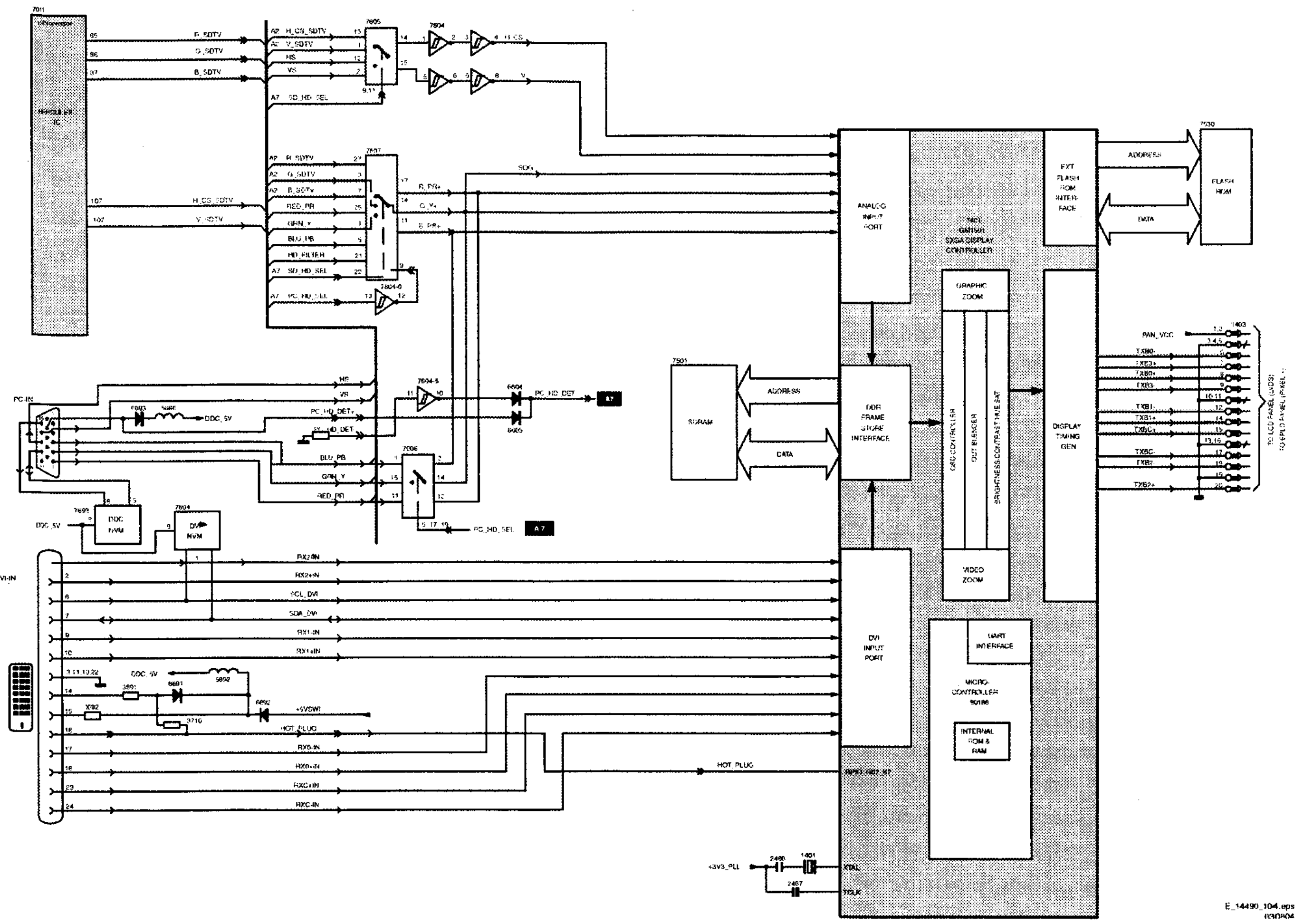

R_SDTV
G_SDTV
B_SDTV
H_CS_SDTV
V_SDTV
HS
VS
SD_HD_SEL
RED_PR
GRN_Y
BLU_PB
HD_FILTER
PC_HD_SEL
PC_HD_DET
PC-IN
DDC_5V
DDC NVM
DVI NVM
DVI-IN
RX2-IN
RX2+IN
SCL_DVI
SDA_DVI
RX1-IN
RX1+IN
+5VSWI
HOT_PLUG
RX0-IN
RX0+IN
RXC+IN
RXC-IN
ANALOG INPUT PORT
GM1501 SXGA DISPLAY CONTROLLER
EXT FLASH ROM INTERFACE
FLASH ROM
ADDRESS
DATA
GRAPHIC ZOOM
SDRAM
DDR FRAME STORE INTERFACE
DISPLAY TIMING GEN
VIDEO ZOOM
DVI INPUT PORT
UART INTERFACE
MICRO-CONTROLLER
INTERNAL ROM & RAM
PAN_VCC
XTAL
TCLK
+3V3_PLL
E_14490_104.eps

Figure 9-3 Block diagram Scaler Part

9.7.1 Features

The Scaler provides several key IC functions:

- Scaling.
- Auto-configuration/ Auto-Detection.
- Various Input Ports:
  - Analog RGB.
  - DVI Compliant.
  - Video Graphics.
- Integrated LVDS Transmitter.
- On-chip Micro-controller

9.7.2 Inputs

Analog RGB

The RGB input is fed to pins B2, C2 and D2. This input consists of either the Hercules RGB output or the RGB/YpbPr input of the VGA connector. The Scaler can switch between the two signals via the PC_HD_SEL signal and selection IC SM5301.

PC (VGA) input

The VGA input is processed by the VGA block of the Scaler. The Scaler supports pixel frequencies up to 165MHz. YpbPr format is also supported via the VGA interface and covers a resolution of 480p/560p/720p/1080i.

DVI-D input

The DVI-D input is processed by the Scaler and supports DVI sources with a pixel clock frequency up to 81MHz.

9.7.3 Output

The Display Output Port provides data and control signals that permit the Scaler to connect to a variety of display devices using a TTL or LVDS interface. The output interface is configurable for single or dual wide TTL/LVDS in 18, 24 or 30-bit RGB pixels format. All display data and timing signals are synchronous with the DCLK output clock. The integrated LVDS transmitter is programmable to allow the data and control signals to be mapped into any sequence depending on the specified receiver format.

9.8 Video: Pixel Plus Part (diagram PP1 to PP4)

The Pixel Plus functionality is completely handled by an Electronic Programmable Logic Device, EPLD (item 7101 on diagram PP1, PP3). The LVDS output from the TV & Scaler Board is fed trough a LVDS receiver (item 7201 on diagram PP2) and then delivered to the EPLD. The EPLD processes the signal and it is fed to the LCD panel via a LVDS transmitter (item 7403 on diagram PP3).
The EPLD takes care of all picture improvement processing, like:

- Colour improvement
  - Blue stretch
  - Green enhancement
  - Saturation control
- Sharpness enhancement
  - Non-linear horizontal peaking
  - Non-linear vertical peaking
  - Coring, clipping

  - Sharpness meter
- Contrast improvement
- Gamma Look-Up Table

All other picture improvement processing is done in the Scaler.

9.9 Audio Processing

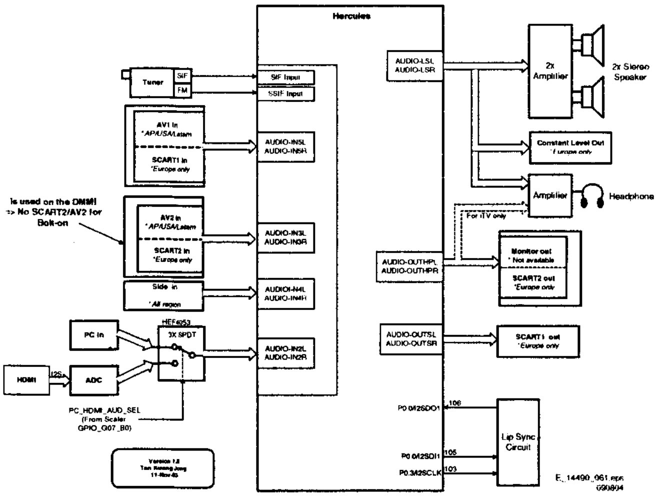

Hercules
Tuner
SIF
FM
SIF Input
SSIF Input
AV1 In
*AP/USA/Latam
SCART1 In
*Europe only
AUDIO-IN5L
AUDIO-IN5R
Is used on the DMMI
=> No SCART2/AV2 for
Bolt-on
AV2 In
*AP/USA/Latam
SCART2 In
*Europe only
AUDIO-IN3L
AUDIO-IN3R
Side In
*All region
AUDIOI-N4L
AUDIO-IN4R
PC In
HEF4053
3X SPDT
HDMI
I2S
ADC
AUDIO-IN2L
AUDIO-IN2R
PC_HDMI_AUD_SEL
(From Scaler
GPIO_G07_B0)
Version 1.0
Tan Kwang Jong
11-Nov-05
AUDIO-LSL
AUDIO-LSR
2x
Amplifier
2x Stereo
Speaker
Constant Level Out
*Europe only
Amplifier
Headphone
For iTV only
AUDIO-OUTHPL
AUDIO-OUTHPR
Monitor out
* Not available
SCART2 out
*Europe only
AUDIO-OUTSL
AUDIO-OUTSR
SCART1 out
*Europe only
P0.0/I2SDO1
106
P0.0/I2SDI1
105
P0.3/I2SCLK
103
Lip Sync
Circuit
E_14490_061.eps
090804

Figure 9-4 Block diagram audio processing

The audio decoding is done entirely via the Hercules. The IF output from the Tuner is fed directly to either the Video-IF or the Sound-IF input depending on the type of concept chosen. There are mainly two types of decoder in the Hercules, an analogue decoder that decodes only Mono, regardless of any standards, and a digital decoder (or DEMDEC) that can decode both Mono as well as Stereo, again regardless of any standards.

In this chassis, the analogue decoder is used in two cases:

- It is used for AM Sound demodulation in the Europe SECAM LL' transmission.
- It is used for all FM demodulation in AV-Stereo sets.

9.9.1 Diversity

The diversity for the Audio decoding can be broken up into two main concepts:

- The Quasi Split Sound concept used in Europe and some AP sets.
- The Inter Carrier concept, used in NAFTA and LATAM.

The UOC-III family makes no difference anymore between QSS- and Intercarrier IF, nearly all types are software-switchable between the two SAW-filter constructions.

Simple data settings are required for the set to determine whether it is using the Inter Carrier or the QSS concept. These settings are done via the "QSS" and "FMI" bit found in SAM mode. Due to the diversity involved, the data for the 2 bits are being placed in the NVM location and it is required to write once during startup.

On top of that, it can be further broken down into various systems depending on the region. The systems or region chosen, will in turn affect the type of sound standard that is/are allowed to be decoded.

- For the case of Europe, the standard consists of BG/DK/I/LL' for a Multi-System set. There are also versions of Eastern Europe and Western Europe set and the standard for decoding will be BG/DK and I/DK respectively. FM Radio is a feature diversity for the Europe sets. The same version can have either FM Radio or not, independent of the system (e.g. sets with BG/DK/I/LL' can have or not have FM radio).
- For the case of NAFTA and LATAM, there is only one transmission standard, which is the M standard. The diversity then will be based on whether it has a dBx noise reduction or a Non-dBx (no dBx noise reduction).
- For the case of AP, the standard consists of BG/DK/I/M for a Multi-System set. The diversity here will then depends on the region. AP China can have a Multi-System and I/DK version. For India, it might only be BG standard.

9.9.2 Functionality

The features available in the Hercules are as follows:

- Treble and Bass Control.
- Surround Sound Effect that includes:
  - Incredible Stereo.
  - Incredible Mono.
  - 3D Sound (not for AV Stereo).
  - TruSurround (not for AV Stereo).
  - Virtual Dolby Surround, VDS422 (not for AV Stereo).
  - Virtual Dolby Surround, VDS423 (not for AV Stereo).
  - Dolby Pro-Logic (not for AV Stereo).
- Bass Feature that includes:
  - Dynamic Ultra-Bass.
  - Dynamic Bass Enhancement.
  - BBE (not for AV Stereo).
- Auto-Volume Leveler.
- 5 Band Equalizer.
- Loudness Control.

All the features stated are available for the Full Stereo versions and limited features for the AV Stereo

9.9.3 Audio Amplifier

The audio amplifier part is very straightforward. It uses the integrated power amplifier TDA7297D, and delivers a maximum output of 2 x 15 W_rms.
The maximum operating condition for this amplifier is 20 V unloaded. Normal operating supply is from 6.5 V to 18 V.
Muting is done via the SOUND_ENABLE line connected to pin 13 of the amplifier-IC and coming from the Hercules.

9.9.4 Audio: Lip Sync

The LC4.2E is not equipped with Lip Sync. This is not needed.

9.10 Control

9.10.1 Hercules

The System Board has two main micro-controllers on board. These are:

- On-chip x86 micro-controller (OCM) from Genesis LCD TV/ Monitor Controller.
- On-chip 80C51 micro-controller from Philips Semiconductor UOCIII (Hercules) series.

Each micro-controller has it own I2C bus which host its own internal devices.
The Hercules is integrated with the Video and Audio Processor.
For dynamic data storage, such as SMART PICTURE and SMART SOUND settings, an external NVM IC is being used.
Another feature includes an optional Teletext/Closed Caption decoder with the possibility of different page storage depending on the Hercules type number.

The Micro Controller ranges in ROM from 128 kB with no TXT-decoder to 128 kB with a 10 page Teletext or with Closed Caption.

9.10.2 Block Diagram

The block diagram of the Micro Controller application is shown below.

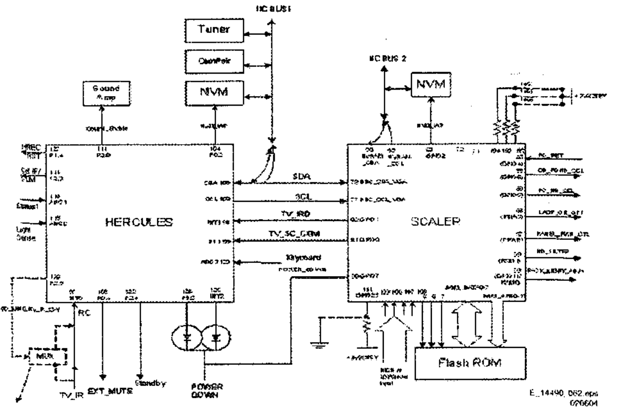


Figure 9-5 Micro Controller block diagram

9.10.3 Basic Specification

The Micro Controller operates at the following supply voltages:

- +3.3 V_dc at pins 4, 88, 94, and 109.
- +1.8 V_dc at pins 93, 96, and 117.
- I2C pull up supply: +3.3V_dc.

9.10.4 Pin Configuration and Functionality

The ports of the Micro Controller can be configured as follows:

- A normal input port.
- An input ADC port.
- An output Open Drain port.
- An output Push-Pull port.
- An output PWM port.
- Input/Output Port

The following table shows the ports used for the L04 control:

Table 9-2 Micro Controller ports overview

Pin	Name	Description	Configuration
97	INT0/ P0.5	IR	INT0
98	P1.0/ INT1	TV_IRQ	INT2
99	P1.1/ T0	TV_SC_COM	P1.1
102	P0.4/ I2SWS	EXT_MUTE	P0.4
103	P0.3/ I2SCLK	Lip Sync	I2SCLK
104	P0.2/ I2SDO2	NVM_WP	P0.2
105	P0.1/ I2SDO1	Lip Sync	I2SDO1
106	P0.0/ I2SDI/O	Lip Sync	I2SDI/O
107	P1.3/ T1	PC-TV_LED	P1.3
108	P1.6/ SCL	SCL	SCL
109	P1.7/ SDA	SDA	SDA
111	P2.0/ TPWM	SOUND_ENABLE	P2.0
112	P2.1/ PWM0	(for future use)	-
113	P2.2/ PWM1	(for future use)	-
114	P2.3/ PWM2	SEL_IF	P2.3
115	P3.0/ ADC0	Light Sensor - SDM	ADC0
116	P3.1/ ADC1	STATUS_1	ADC1
119	P3.2/ ADC2	STATUS_2	ADC2
120	P3.3/ ADC3	KEYBOARD	ADC3
122	P2.4/ PWM3	STANDBY	P2.4
123	P2.5/ PWM4	(for future use)	-
126	P1.2/ INT2	(for future use)	-
127	P1.4/ RX	HERC_RESET	-
128	P1.5/ TX	POWER_DOWN	P1.5

The description of each functional pin is explained below:

- **LED.** This signal is used as an indication for the Standby, Remote and Error Indicator. Region diversity:
  - During protection mode, the LED blinks and the set is in standby mode.
  - During error conditions it blinks at a predefined rate.
  - After receiving a valid RC-5 or local keyboard command it flashes once.
  - For sets with error message indication, the LED blinks when message is active and the set is in standby mode.
- **SCL.** This is the clock wire of the two-wire single master bi-directional I2C bus.
- **SDA.** This is the data wire of the two-wire single master bi-directional I2C bus.
- **STANDBY.** The Hercules generates this signal. This can enable the power supply in normal operation and disable it during Standby. It is of logic "high" (3.3 V) under normal operation and "low" (0 V) during Standby.
- **IR.** This input pin is connected to an RC5 remote control receiver.
- **SEL-IF.** This is an output pin to switch the Video SAW filter between M system and other systems.
  - 0: NTSC M (default)
  - 1: PAL B/G, DK, I, L
- **NVM_WP.** The global protection line is used to enable and disable write protection to the NVM. When write to the NVM is required, pin 7 of the NVM must be pulled to logic '0' first (via Write_Protect of the micro-controller pin) before a write is performed. Otherwise pin 7 of NVM must always be at logic "1"
  - 0: Disabled
  - 1: Enabled (default)
- **SOUND_ENABLE.** This pin is use to MUTE the audio amplifier. It is configured as push pull.
- **STATUS_1.** This signal is used to read the status of the SCART 1 input.
- **STATUS_2.** This signal is used to read the status of the SCART 2 input.
- **HERC_RESET.** This pin is use to switch the +1.8V supply.
- POWER_DOWN. The power supply generates this signal. Logic "high" (3.3 V) under normal operation of the TV and goes "low" (0 V) when the Mains input voltage supply goes below 70 V_ac.
- Keyboard. Following are the Keyboard functions and the step values (8 bit) for it.

Table 9-3 Local keyboard values

Function	Voltage (V_dc)	Step values (8 bit)
NAFTA Standby	0	0 - 6
Ch +	0.43	7 - 33
Exit Factory (Ch- and Vol-)	0.69	34 - 53
Ch -	0.93	54 - 73
Menu (Vol - and Vol +)	1.19	74 - 96
Vol -	1.49	97 - 121
DVD Eject	1.8	122 - 147
Vol +	2.12	148 - 169

- **TV_IRQ.** This signal is the interrupt from the Scaler IC.
- **TV_SC_COM.** This signal is used for the communication with the Scaler IC.
- **EXT_MUTE.** This signal is used to reduce the Switch-off plop.

9.11 LCD Display

9.11.1 Specifications

Panel model : LC171W03-A4K3 (17")

: LC230W01-A2K8 (23”)
: LC260W01-A5K6 (26”)
Resolution (HxV) : 1080x768 pixels (17”)
: 1280x768 pixels (23”)
: 1280x768 pixels (26”)
Luminance : 450 nit (17”)
: 450 nit (23”)
: 450 nit (26”)
Supplier : LG.Philips LCD

9.12 Abbreviation list

0/6/12	SCART switch control signal on A/V board. 0 = loop through (AUX to TV), 6 = play 16:9 format, 12 = play 4:3 format
1080i	1080 visible lines, interlaced
1080p	1080 visible lines, progressive scan
2CS	2 Carrier Stereo
480i	480 visible lines, interlaced
480p	480 visible lines, progressive scan
ACI	Automatic Channel Installation: algorithm that installs TV channels directly from a cable network by means of a predefined TXT page
ADC	Analogue to Digital Converter
AFC	Automatic Frequency Control: control signal used to tune to the correct frequency
AGC	Automatic Gain Control: algorithm that controls the video input of the feature box
AM	Amplitude Modulation
AP	Asia Pacific
AR	Aspect Ratio: 4 by 3 or 16 by 9
ASD	Automatic Standard Detection
AV	Audio Video
B-SC1-IN	Blue SCART1 in
B-SC2-IN	Blue SCART2 in
B-TXT	Blue teletext
B/G	Monochrome TV system. Sound carrier distance is 5.5 MHz
BOCMA	Bimos one Chip Mid-end Architecture: video and chroma decoder
C-FRONT	Chrominance front input
CBA	Circuit Board Assembly (or PWB)
CL	Constant Level: audio output to connect with an external amplifier
CLUT	Colour Look Up Table
ComPair	Computer aided rePair
CSM	Customer Service Mode
CVBS	Composite Video Blanking and Synchronisation
CVBS-EXT	CVBS signal from external source (VCR, VCD, etc.)
CVBS-INT	CVBS signal from Tuner
CVBS-MON	CVBS monitor signal
CVBS-TER-OUT	CVBS terrestrial out
DAC	Digital to Analogue Converter
DBE	Dynamic Bass Enhancement: extra low frequency amplification
DFU	Directions For Use: owner's manual
DNR	Dynamic Noise Reduction
DRAM	Dynamic RAM
DSP	Digital Signal Processing
DST	Dealer Service Tool: special (European) remote control designed for service technicians
DTS	Digital Theatre Sound
DVD	Digital Video Disc
EEPROM	Electrically Erasable and Programmable Read Only Memory
EPG	Electronic Program Guide: system used by broadcasters to transmit TV guide information (= NexTView)
EPLD	Electronic Programmable Logic Device
EU	EUrope
EXT	EXTernal (source), entering the set by SCART or by cinches (jacks)
FBL	Fast Blanking: DC signal accompanying RGB signals
FBL-SC1-IN	Fast blanking signal for SCART1 in
FBL-SC2-IN	Fast blanking signal for SCART2 in
FBL-TXT	Fast Blanking Teletext
FLASH	FLASH memory
FM	Field Memory / Frequency Modulation
FMR	FM Radio
FRC	Frame Rate Converter
FRONT-C	Front input chrominance (SVHS)
FRONT-DETECT	Front input detection
FRONT-Y_CVBS	Front input luminance or CVBS (SVHS)
G-SC1-IN	Green SCART1 in
G-SC2-IN	Green SCART2 in
G-TXT	Green teletext
H	H_sync to the module
HA	Horizontal Acquisition: horizontal sync pulse coming out of the BOCMA
HD	High Definition
HP	HeadPhone
I	Monochrome TV system. Sound carrier distance is 6.0 MHz
I2C	Integrated IC bus
I2S	Integrated IC Sound bus
IC	Integrated Circuit
IF	Intermediate Frequency
Interlaced	Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in "pairs", causing line flicker.
IR	Infra Red
IRQ	Interrupt ReQuest
Last Status	The settings last chosen by the customer and read and stored in RAM or in the NVM. They are called at start-up of the set to configure it according the customers wishes
LATAM	LATin AMerica
LC04	Philips chassis name for LCD TV 2004 project
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LINE-DRIVE	Line drive signal
L/L'	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I
LS	LoudSpeaker
LVDS	Low Voltage Differential Signalling, data transmission system for high speed and low EMI communication.
M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz
MOSFET	Metal Oxide Semiconductor Field Effect Transistor
MPEG	Motion Pictures Experts Group
MSP	Multi-standard Sound Processor: ITT sound decoder
MUTE	MUTE Line
NC	Not Connected
NICAM	Near Instantaneous Compounded Audio Multiplexing. This is a digital sound system, used mainly in Europe.
NTSC	National Television Standard Committee. Colour system used mainly in North America and Japan.

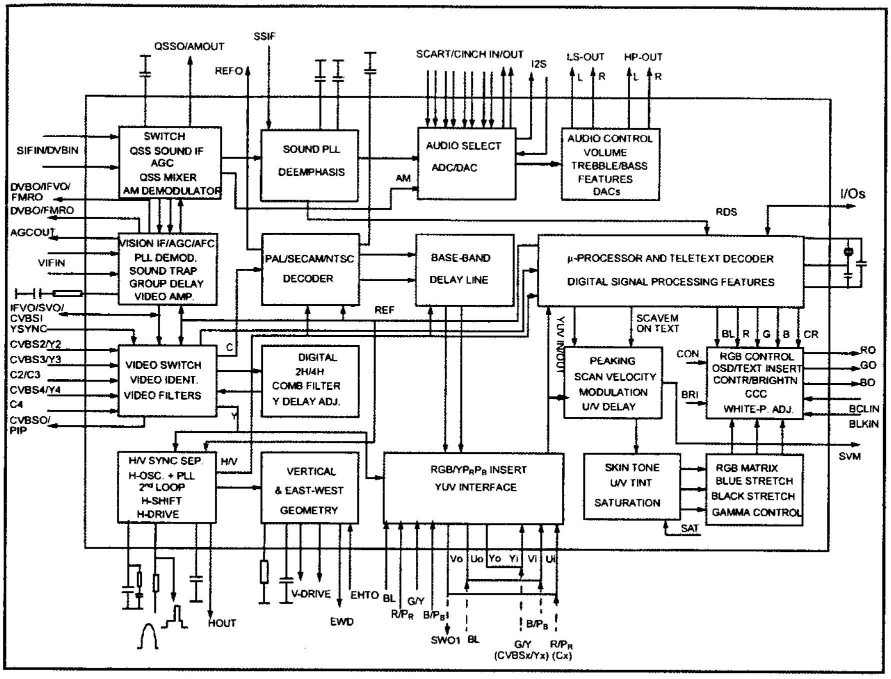
	Colour carrier NTSC M/N = 3.579545 MHz, NTSC 4.43 = 4.433619 MHz (this is a VCR norm, it is not transmitted off-air)
NVM	Non Volatile Memory: IC containing TV related data (for example, options)
O/C	Open Circuit
ON/OFF LED	On/Off control signal for the LED
OSD	On Screen Display
P50	Project 50 communication: protocol between TV and peripherals
PAL	Phase Alternating Line. Colour system used mainly in Western Europe (colour carrier = 4.433619 MHz) and South America (colour carrier PAL M = 3.575612 MHz and PAL N = 3.582056 MHz)
PC	Personal Computer
PCB	Printed Circuit Board (or PWB)
PIG	Picture In Graphic
PIP	Picture In Picture
PLL	Phase Locked Loop. Used, for example, in FST tuning systems. The customer can directly provide the desired frequency
Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
PWB	Printed Wiring Board (or PCB)
RAM	Random Access Memory
RC	Remote Control transmitter
RC5	Remote Control system 5, the signal from the remote control receiver
RGB	Red, Green, and Blue. The primary colour signals for TV. By mixing levels of R, G, and B, all colours (Y/C) are reproduced.
RGBHV	Red, Green, Blue, Horizontal sync, and Vertical sync
ROM	Read Only Memory
SAM	Service Alignment Mode
SIF	Sound Intermediate Frequency
SC	SandCastle: two-level pulse derived from sync signals
SC1-OUT	SCART output of the MSP audio IC
SC2-B-IN	SCART2 Blue in
SC2-C-IN	SCART2 chrominance in
SC2-OUT	SCART output of the MSP audio IC
S/C	Short Circuit
SCART	Syndicat des Constructeurs d'Appareils Radiorecepteurs et Televisieurs
SCL	CLock Signal on I2C bus
SD	Standard Definition
SDA	DAta Signal on I2C bus
SDRAM	Synchronous DRAM
SECAM	SEequence Couleur Avec Memoire. Colour system used mainly in France and Eastern Europe. Colour carriers = 4.406250 MHz and 4.250000 MHz
SIF	Sound Intermediate Frequency
SMPS	Switch Mode Power Supply
SND	SouND
SNDL-SC1-IN	Sound left SCART1 in
SNDL-SC1-OUT	Sound left SCART1 out
SNDL-SC2-IN	Sound left SCART2 in
SNDL-SC2-OUT	Sound left SCART2 out
SNDR-SC1-IN	Sound right SCART1 in
SNDR-SC1-OUT	Sound right SCART1 out
SNDR-SC2-IN	Sound right SCART2 out
SNDR-SC2-OUT	Sound right SCART2 out
SNDS-VL-OUT	Surround sound left variable level out
SNDS-VR-OUT	Surround sound right variable level out
SOPS	Self Oscillating Power Supply
S/PDIF	Sony Philips Digital InterFace
SRAM	Static RAM
STBY	STandBY
SVHS	Super Video Home System
SW	SubWoofer / SoftWare
THD	Total Harmonic Distortion
TXT	TeleteXT
uP	Microprocessor
VA	Vertical Acquisition
VL	Variable Level out: processed audio output toward external amplifier
VCR	Video Cassette Recorder
VGA	Video Graphics Array
WD	Watch Dog
WYSIWYR	What You See Is What You Record: record selection that follows main picture and sound
XTAL	Quartz crystal
YPbPr	Component video (Y= Luminance, Pb/Pr= Colour difference signals)
Y/C	Luminance (Y) and Chrominance (C) signal
Y-OUT	Luminance-signal
YUV	Component video

9.13 IC Data Sheets

This section shows the internal block diagrams and pin layouts of ICs that are drawn as "black boxes" in the electrical diagrams (with the exception of "memory" and "logic" ICs).

9.13.1 Diagram A2, Type TDA12029H (IC7011)

Block diagram of the "AV-stereo" TV processor with audio DSP


QSSO/AMOUT
SSIF
REFO
SCART/CINCH IN/OUT
I2S
LS-OUT
HP-OUT
L
R
L
R
SWITCH
QSS SOUND IF
AGC
QSS MIXER
AM DEMODULATOR
SOUND PLL
DEEMPHASIS
AM
AUDIO SELECT
ADC/DAC
AUDIO CONTROL
VOLUME
TREBBLE/BASS
FEATURES
DACs
I/Os
RDS
SIFIN/DVBIN
DVBO/IFVO/
FMRO
DVBO/FMRO
AGCOUT
VIFIN
VISION IF/AGC/AFC
PLL DEMOD.
SOUND TRAP
GROUP DELAY
VIDEO AMP.
PAL/SECAM/NTSC
DECODER
BASE-BAND
DELAY LINE
µ-PROCESSOR AND TELETEXT DECODER
DIGITAL SIGNAL PROCESSING FEATURES
REF
IFVO/SVO/
CVBSI
YSYNC
CVBS2/Y2
CVBS3/Y3
C2/C3
CVBS4/Y4
C4
CVBSO/
PIP
C
VIDEO SWITCH
VIDEO IDENT.
VIDEO FILTERS
DIGITAL
2H/4H
COMB FILTER
Y DELAY ADJ.
Y
YUV IN/OUT
SCAVEM
ON TEXT
BL
R
G
B
CR
PEAKING
SCAN VELOCITY
MODULATION
U/V DELAY
CON.
BRI
RGB CONTROL
OSD/TEXT INSERT
CONTR/BRIGHTN
CCC
WHITE-P. ADJ.
RO
GO
BO
BCLIN
BLKIN
SVM
H/V SYNC SEP.
H-OSC. + PLL
2nd LOOP
H-SHIFT
H-DRIVE
H/V
VERTICAL
& EAST-WEST
GEOMETRY
RGB/YPRPB INSERT
YUV INTERFACE
SKIN TONE
U/V TINT
SATURATION
RGB MATRIX
BLUE STRETCH
BLACK STRETCH
GAMMA CONTROL
SAT
Vo
Uo
Yo
Yi
Vi
Ui
V-DRIVE
EHTO
HOUT
EWD
BL
G/Y
R/PR
B/PB
SWO1
BL
B/PB
G/Y
R/PR
(CVBSx/Yx)
(Cx)

Pin configuration "stereo" and "AV-stereo" versions with Audio DSP

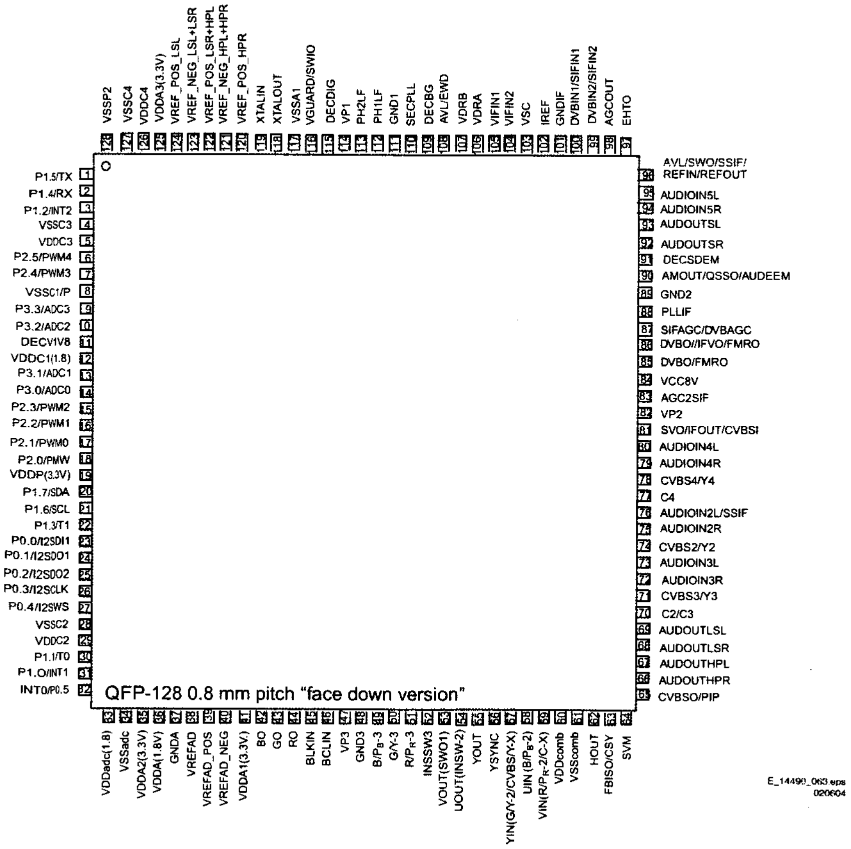
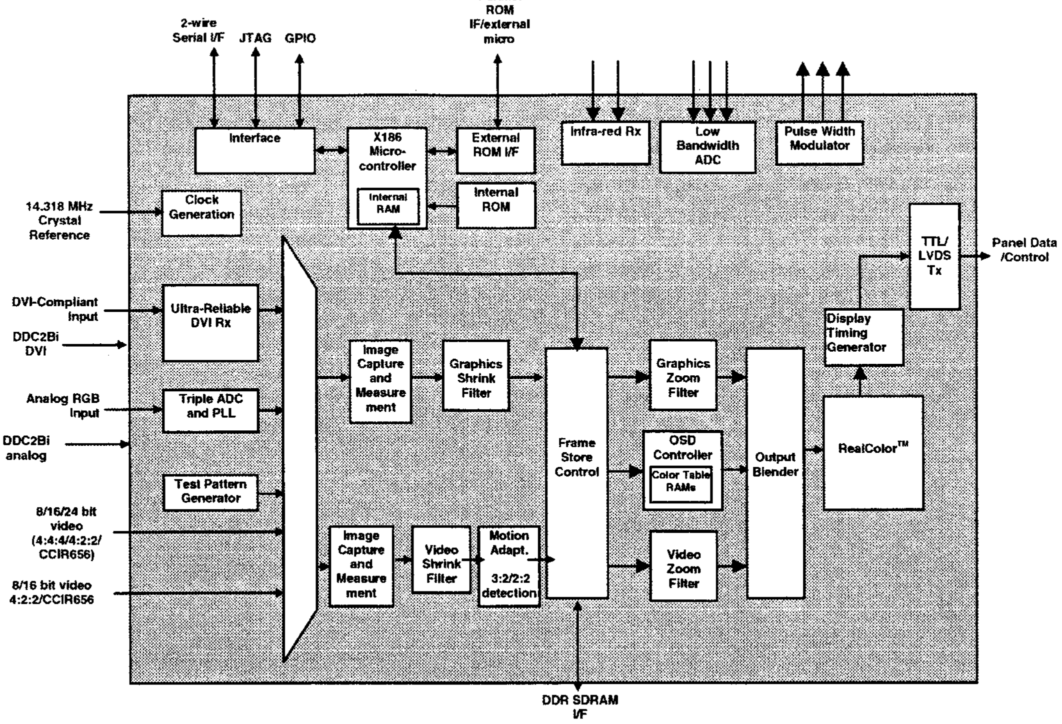

1 P1.5/TX
2 P1.4/RX
3 P1.2/INT2
4 VSSC3
5 VDDC3
6 P2.5/PWM4
7 P2.4/PWM3
8 VSSC1/P
9 P3.3/ADC3
10 P3.2/ADC2
11 DECV1V8
12 VDDC1(1.8)
13 P3.1/ADC1
14 P3.0/ADC0
15 P2.3/PWM2
16 P2.2/PWM1
17 P2.1/PWM0
18 P2.0/PMW
19 VDDP(3.3V)
20 P1.7/SDA
21 P1.6/SCL
22 P1.3/T1
23 P0.0/I2SDI1
24 P0.1/I2SDO1
25 P0.2/I2SDO2
26 P0.3/I2SCLK
27 P0.4/I2SWS
28 VSSC2
29 VDDC2
30 P1.1/T0
31 P1.O/INT1
32 INT0/P0.5
33 VDDadc(1.8)
34 VSSadc
35 VDDA2(3.3V)
36 VDDA(1.8V)
37 GNDA
38 VREFAD
39 VREFAD_POS
40 VREFAD_NEG
41 VDDA1(3.3V)
42 BO
43 GO
44 RO
45 BLKIN
46 BCLIN
47 VP3
48 GND3
49 B/PB-3
50 G/Y-3
51 R/PR-3
52 INSSW3
53 VOUT(SWO1)
54 UOUT(INSW-2)
55 YOUT
56 YSYNC
57 YIN(G/Y-2/CVBS/Y-X)
58 UIN(B/PB-2)
59 VIN(R/PR-2/C-X)
60 VDDcomb
61 VSScomb
62 HOUT
63 FBISO/CSY
64 SVM
65 CVBSO/PIP
66 AUDOUTHPR
67 AUDOUTHPL
68 AUDOUTLSR
69 AUDOUTLSL
70 C2/C3
71 CVBS3/Y3
72 AUDIOIN3R
73 AUDIOIN3L
74 CVBS2/Y2
75 AUDIOIN2R
76 AUDIOIN2L/SSIF
77 C4
78 CVBS4/Y4
79 AUDIOIN4R
80 AUDIOIN4L
81 SVO/IFOUT/CVBSI
82 VP2
83 AGC2SIF
84 VCC8V
85 DVBO/FMRO
86 DVBO//IFVO/FMRO
87 SIFAGC/DVBAGC
88 PLLIF
89 GND2
90 AMOUT/QSSO/AUDEEM
91 DECSDEM
92 AUDOUTSR
93 AUDOUTSL
94 AUDIOIN5R
95 AUDIOIN5L
96 AVL/SWO/SSIF/ REFIN/REFOUT
97 EHTO
98 AGCOUT
99 DVBIN2/SIFIN2
100 DVBIN1/SIFIN1
101 GNDIF
102 IREF
103 VSC
104 VIFIN2
105 VIFIN1
106 VDRA
107 VDRB
108 AVL/EWD
109 DECBG
110 SECPLL
111 GND1
112 PH1LF
113 PH2LF
114 VP1
115 DECDIG
116 VGUARD/SWIO
117 VSSA1
118 XTALOUT
119 XTALIN
120 VREF_POS_HPR
121 VREF_NEG_HPL+HPR
122 VREF_POS_LSR+HPL
123 VREF_NEG_LSL+LSR
124 VREF_POS_LSL
125 VDDA3(3.3V)
126 VDDC4
127 VSSC4
128 VSSP2
QFP-128 0.8 mm pitch "face down version"
E_14490_063.eps
020604

Figure 9-6 Internal Block Diagram and Pin Configuration

9.13.2 Diagram A7, Type GM1501 (IC7401)

Block Diagram


2-wire Serial I/F
JTAG
GPIO
Parallel ROM IF/external micro
Interface
X186 Micro-controller
Internal RAM
External ROM I/F
Internal ROM
Infra-red Rx
Low Bandwidth ADC
Pulse Width Modulator
14.318 MHz Crystal Reference
Clock Generation
TTL/ LVDS Tx
Panel Data /Control
DVI-Compliant Input
DDC2Bi DVI
Ultra-Reliable DVI Rx
Analog RGB Input
Triple ADC and PLL
DDC2Bi analog
Test Pattern Generator
8/16/24 bit video (4:4:4/4:2:2/ CCIR656)
8/16 bit video 4:2:2/CCIR656
Image Capture and Measure ment
Graphics Shrink Filter
Frame Store Control
Graphics Zoom Filter
OSD Controller
Color Table RAMs
Output Blender
Display Timing Generator
RealColor™
Image Capture and Measure ment
Video Shrink Filter
Motion Adapt. 3:2/2:2 detection
Video Zoom Filter
DDR SDRAM I/F

Pin Configuration

	1	2	3	4	5	6	7	8	9	10	11	12	13
A	NC	ADC_3.3	ADC_1.8	ADC_1.8	ADC_DGND	RXC+	DVI_GND	RX0+	RX1+	RX2+	DVI_GND	LBADC_N3	D_GND
B	BLUE-	BLUE+	ADC_3.3	ADC_DGND	DVI_GND	RXC-	DVI_GND	RX0-	RX1-	RX2-	REXT	LBADC_N2	D_GND
C	GREEN-	GREEN+	SOG	ADC_AGND	NC	DVI_3.3	DVI_GND	DVI_3.3	DVI_3.3	DVI_3.3	DVI_3.3	LBADC_N1	LBADC_33
D	RED-	RED+	ADC_3.3	ADC_AGND	NC	DVI_1.8	DVI_GND	DVI_1.8	DVI_1.8	DVI_1.8	DVI_GND	LBADC_ RETURN	LBADC_GND
E	ADC_AGND	ADC_AGND	ADC_3.3	ADC_AGND									
F	NC	VDDD33_ PLL	VSSA33_ RPLL	VDDA33_ RPLL									
G	VDDA33 FPLL	VSSD33 PLL	TCLK	XTAL									
H	VDDD33 SDDS	VSSA33_ SDDS	VDDA33 SDDS	VSSA33_ FPLL									
J	VDDD33 DDDS	VSSA33 DDDS	VDDA33 DDDS	VSSD33 SDDS									
K	RESETn	ACS_ RSET_HD	NC	VSSD33_ DDDS						CORE_1.8	CORE_1.8	D_GND	D_GND
L	OCM_INT2	OCM_INT1	AVSYNC	AHSYNC						D_GND	CORE_1.8	D_GND	D_GND
M	OCM_UDO	OCM_UDI	IR0	IR1						D_GND	D_GND	D_GND	D_GND
N	VGA_SDA	VGA_SCL	DVI_SDA	DVI_SCL						D_GND	D_GND	D_GND	D_GND
P	OCM_CS1n	OCM_CS2n	MSTR_SDA	MSTR_SCL						D_GND	D_GND	D_GND	D_GND
R	ROM_CSn	OCM_REn	OCM_WEn	EXTCLK						D_GND	D_GND	D_GND	D_GND
T	OCMADDR 17	OCMADDR 18	OCMADDR 19	OCM_CS0n						D_GND	CORE_1.8	D_GND	D_GND
U	OCMADDR 13	OCMADDR 14	OCMADDR 15	OCMADDR 16						CORE_1.8	CORE_1.8	D_GND	D_GND
V	OCMADDR 9	OCMADDR 10	OCMADDR 11	OCMADDR 12									
W	OCMADDR 6	OCMADDR 7	OCMADDR 8	IO_3.3									
Y	OCMADDR 3	OCMADDR 4	OCMADDR 5	IO_3.3									
AA	OCMADDR 0	OCMADDR 1	OCMADDR 2	IO_3.3									
AB	OCMDATA13	OCMDATA14	OCMDATA15	IO_3.3									
AC	OCMDATA10	OCMDATA11	OCMDATA12	IO_3.3	GPIO_G09_ B2 (DEGRN0)	IO_3.3	DCLK	IO_3.3	GPIO_G07_ B2 (DERED4)	IO_3.3	SHIELD[1] (DEGRN3)	LVDSB_3.3	[illegible]
AD	OCMDATA9	OCMDATA6	OCMDATA3	OCMDATA0	GPIO_G09_ B3 (DEGRN1)	GPIO_G08_ B0 (DORED0)	DEN	GPIO_G08_ B5 (DOBLU1)	GPIO_G07_ B3 (DERED5)	GPIO_G07_ B6 (DERED8)	SHIELD[2] (DEGRN4)	LVDSB_3.3	LVDSB_3.3
AE	OCMDATA8	OCMDATA5	OCMDATA2	GPIO_G09_ B0 (DERED0)	GPIO_G09_ B4 (DEBLU0)	GPIO_G08_ B1 (DORED1)	GPIO_G08_ B3 (DOGRN1)	GPIO_G07_ B0 (DERED2)	GPIO_G07_ B4 (DERED6)	GPIO_G07_ B7 (DERED9)	SHIELD[3] (DEGRN5)	BC+ (DEGRN8)	SHIELD[4] (DEBLU2)
AF	OCMDATA7	OCMDATA4	OCMDATA1	GPIO_G09_ B1 (DERED1)	GPIO_G09_ B5 (DEBLU1)	GPIO_G08_ B2 (DOGRN0)	GPIO_G08_ B4 (DOBLU0)	GPIO_G07_ B1 (DERED3)	GPIO_G07_ B5 (DERED7)	SHIELD[0] (DEGRN2)	B3+ (DEGRN6)	B3- (DEGRN7)	BC- (DEGRN9)

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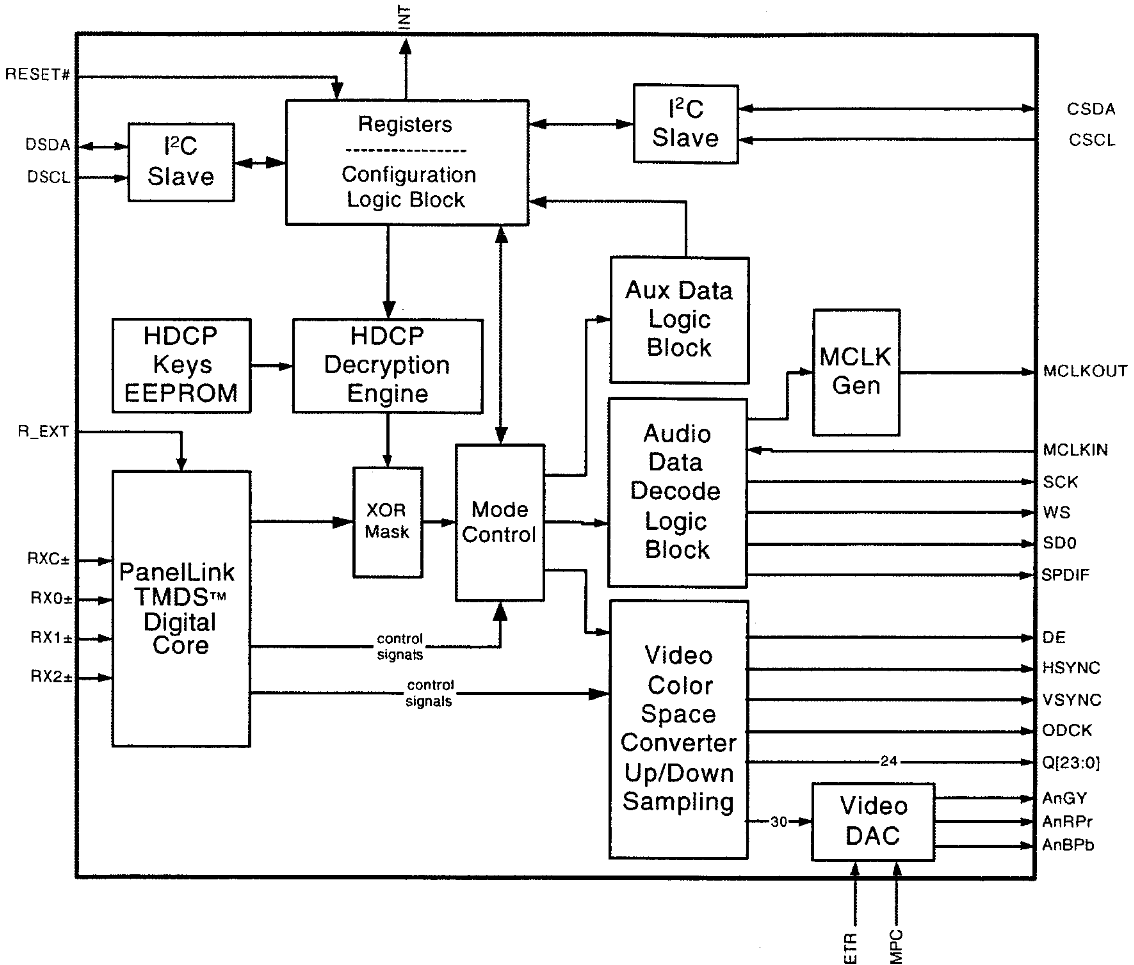
Figure 9-7 Internal Block Diagram and Pin Configuration

9.13.3 Diagram A12, Type S9993CT (IC7808)

BLOCK DIAGRAM


INT
RESET#
DSDA
DSCL
I²C Slave
Registers
Configuration Logic Block
I²C Slave
CSDA
CSCL
Aux Data Logic Block
HDCP Keys EEPROM
HDCP Decryption Engine
MCLK Gen
MCLKOUT
R_EXT
MCLKIN
Audio Data Decode Logic Block
SCK
WS
SD0
SPDIF
XOR Mask
Mode Control
RXC±
RX0±
RX1±
RX2±
PanelLink TMDS™ Digital Core
control signals
control signals
Video Color Space Converter Up/Down Sampling
DE
HSYNC
VSYNC
ODCK
24
Q[23:0]
30
Video DAC
AnGY
AnRPr
AnBPb
SETR
OMPC

PIN CONFIGURATION

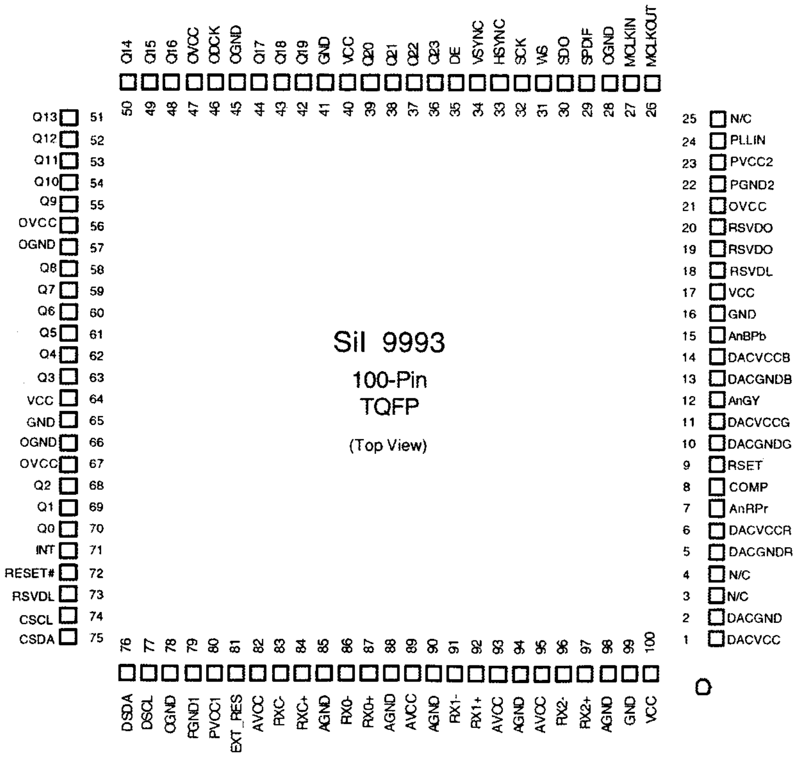

Q14 50
Q15 49
Q16 48
OVCC 47
ODCK 46
OGND 45
Q17 44
Q18 43
Q19 42
GND 41
VCC 40
Q20 39
Q21 38
Q22 37
Q23 36
DE 35
VSYNC 34
HSYNC 33
SCK 32
WS 31
SDO 30
SPDIF 29
OGND 28
MCLKIN 27
MCLKOUT 26
Q13 51
Q12 52
Q11 53
Q10 54
Q9 55
OVCC 56
OGND 57
Q8 58
Q7 59
Q6 60
Q5 61
Q4 62
Q3 63
VCC 64
GND 65
OGND 66
OVCC 67
Q2 68
Q1 69
Q0 70
INT 71
RESET# 72
RSVDL 73
CSCL 74
CSDA 75
25 N/C
24 PLLIN
23 PVCC2
22 PGND2
21 OVCC
20 RSVDO
19 RSVDO
18 RSVDL
17 VCC
16 GND
15 AnBPb
14 DACVCCB
13 DACGNDB
12 AnGY
11 DACVCCG
10 DACGNDG
9 RSET
8 COMP
7 AnRPr
6 DACVCCR
5 DACGNDR
4 N/C
3 N/C
2 DACGND
1 DACVCC
76 DSDA
77 DSCL
78 OGND
79 PGND1
80 PVCC1
81 EXT_RES
82 AVCC
83 RXC-
84 RXC+
85 AGND
86 RX0-
87 RX0+
88 AGND
89 AVCC
90 AGND
91 RX1-
92 RX1+
93 AVCC
94 AGND
95 AVCC
96 RX2-
97 RX2+
98 AGND
99 GND
100 VCC
SiI 9993
100-Pin TQFP
(Top View)

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Figure 9-8 Internal Block Diagram

10. Spare Parts List

Set Level

Various

1099▲	9322 194 30682	TFT-LCD LC230W01
8301	3139 131 03961	FFC Foil 20P
8403▲	3139 131 03581	Cable 20P
8990	3139 131 03861	Cable 12P

TV Scalerboard [A]

Various

1001	2422 543 01255	Crystal 24.576MHz
1005	2422 025 18249	45P Female
1302▲	3139 147 19701	UR1316/A I H-3
1303	2422 025 16835	3P Male
1304	2422 025 16835	3P Male
1328	2422 549 44372	Filter K3953L
1330	2422 549 44369	Filter K9656L
1401	2422 543 01133	Crystal 14.32MHz
1704	2422 025 16543	4P Male
1910	2422 025 16705	12P Male
8910	3139 110 28271	Cable 12P

⊣⊢

2000	3198 017 41050	1µF 10V 0603
2001	2020 552 96718	220nF 10% 6.3V 0402
2002	2020 021 91679	100µF 20% 6.3V
2004	2020 552 96718	220nF 10% 6.3V 0402
2005	3198 035 71040	100nF 10% 16V 0402
2006	3198 034 08280	8.2pF 50V 0402
2007	3198 034 08280	8.2pF 50V 0402
2008	3198 017 44740	470nF 10V 0603
2009	3198 017 41050	1µF 10V 0603
2010	3198 035 26820	6.8nF 10% 16V 0402
2011	2020 552 96718	220nF 10% 6.3V 0402
2012	2020 021 91557	100µF 20% 16V
2013	3198 035 71040	100nF 10% 16V 0402
2014	3198 035 71040	100nF 10% 16V 0402
2015	3198 035 71040	100nF 10% 16V 0402
2016	3198 035 71040	100nF 10% 16V 0402
2017	3198 035 71040	100nF 10% 16V 0402
2018	3198 035 71040	100nF 10% 16V 0402
2019	2020 021 91617	47µF 20% 16V
2020	2238 869 15101	100pF 5% 50V 0402
2021	2020 552 96628	10nF 10% 16V 0402
2022	3198 035 02210	220pF 5% 50V 0402
2023	2020 552 96718	220nF 10% 6.3V 0402
2024	2020 021 91557	100µF 20% 16V
2025	3198 035 71040	100nF 10% 16V 0402
2026	3198 035 71040	100nF 10% 16V 0402
2027	3198 035 71040	100nF 10% 16V 0402
2028	2020 552 96628	10nF 10% 16V 0402
2029	3198 035 71040	100nF 10% 16V 0402
2030	3198 035 71040	100nF 10% 16V 0402
2031	3198 035 71040	100nF 10% 16V 0402
2032	3198 035 71040	100nF 10% 16V 0402
2033	2020 552 96718	220nF 10% 6.3V 0402
2034	2020 552 00002	3.3nF 2% 50V 0805
2035	4822 124 12095	100µF 20% 16V
2040	2020 021 91616	10µF
2041	2020 552 96718	220nF 10% 6.3V 0402
2042	2020 552 00002	3.3nF 2% 50V 0805
2043	3198 035 71040	100nF 10% 16V 0402
2044	2020 552 96718	220nF 10% 6.3V 0402
2045	2020 552 96628	10nF 10% 16V 0402
2046	3198 017 41050	1µF 10V 0603
2048	2020 552 96834	1µF 20% 6.3V 0402
2052	2020 552 96618	1nF 10% 50V 0402
2053	2020 552 96618	1nF 10% 50V 0402
2054	2020 552 96618	1nF 10% 50V 0402
2055	4822 126 14519	22pF 5% 50V 0402
2060	3198 035 71040	100nF 10% 16V 0402
2061	2020 021 91616	10µF 16V
2062	2020 552 00002	3.3nF 2% 50V 0805
2063	3198 017 31540	150nF 10V 0603
2068	2020 552 96718	220nF 10% 6.3V 0402
2071	2020 021 91557	100µF 20% 16V
2072	2020 552 96718	220nF 10% 6.3V 0402
2073	2020 552 96618	1nF 10% 50V 0402
2074	2020 552 96718	220nF 10% 6.3V 0402
2076	2020 552 96718	220nF 10% 6.3V 0402
2077	2020 552 96834	1µF 20% 6.3V 0402
2078	2238 869 15101	100pF 5% 50V 0402
2079	2020 552 96632	22nF 10% 16V 0402
2082	2020 552 96618	1nF 10% 50V 0402
2083	2020 552 96618	1nF 10% 50V 0402
2084	2020 552 96618	1nF 10% 50V 0402
2085	2020 552 96618	1nF 10% 50V 0402
2086	2020 552 96618	1nF 10% 50V 0402
2087	2020 552 96618	1nF 10% 50V 0402
2089	2020 552 96618	1nF 10% 50V 0402
2099	2020 552 96618	1nF 10% 50V 0402
2302	4822 122 33761	22pF 5% 50V
2303	4822 122 33761	22pF 5% 50V
2307	3198 024 44730	47nF 50V 0603
2308	3198 030 82280	2.2µF 20% 50V
2309	2020 021 91871	470µF 16V
2311	2020 021 91557	100µF 20% 16V
2313	3198 016 31020	1nF 25V 0603
2314	2238 586 59812	100nF 20% 50V 0603
2317	3198 016 31020	1nF 25V 0603
2318	3198 016 31020	1nF 25V 0603
2321	5322 126 11583	10nF 10% 50V 0603
2324	5322 126 11583	10nF 10% 50V 0603
2355	2020 021 91601	470µF 50V
2356	2020 021 91601	470µF 50V
2357	3198 035 71040	100nF 10% 16V 0402
2358	3198 035 03320	3.3nF 5% 50V 0402
2359	2020 552 96628	10nF 10% 16V 0402
2370	2020 552 96834	1µF 20% 6.3V 0402
2371	2020 552 96834	1µF 20% 6.3V 0402
2372	2020 552 96618	1nF 10% 50V 0402
2373	2020 552 96618	1nF 10% 50V 0402
2374	3198 035 71040	100nF 10% 16V 0402
2375	2020 021 91616	10µF 16V
2376	3198 017 41050	1µF 10V 0603
2377	3198 017 41050	1µF 10V 0603
2378	2020 552 96718	220nF 10% 6.3V 0402
2379	2020 552 96718	220nF 10% 6.3V 0402
2380	2020 021 91617	47µF 20% 16V
2381	3198 035 71040	100nF 10% 16V 0402
2382	2020 021 91871	470µF 16V
2386	3198 017 41050	1µF 10V 0603
2387	4822 126 14324	33pF 5% 50V 0402
2388	4822 126 14324	33pF 5% 50V 0402
2389	2020 012 93761	330µF 6.3V
2392	3198 017 41050	1µF 10V 0603
2394	3198 035 71040	100nF 10% 16V 0402
2395	3198 035 71040	100nF 10% 16V 0402
2396	4822 124 23002	10µF 16V
2397	2020 552 96834	1µF 20% 6.3V 0402
2398	2020 552 96834	1µF 20% 6.3V 0402
2401	4822 124 80151	47µF 16V
2402	4822 124 80151	47µF 16V
2403	3198 035 71040	100nF 10% 16V 0402
2404	3198 035 71040	100nF 10% 16V 0402
2405	3198 035 71040	100nF 10% 16V 0402
2406	3198 035 71040	100nF 10% 16V 0402
2407	3198 035 71040	100nF 10% 16V 0402
2408	3198 035 71040	100nF 10% 16V 0402
2409	3198 035 71040	100nF 10% 16V 0402
2410	3198 035 71040	100nF 10% 16V 0402
2411	3198 035 71040	100nF 10% 16V 0402
2412	3198 035 71040	100nF 10% 16V 0402
2413	3198 035 71040	100nF 10% 16V 0402
2414	3198 035 71040	100nF 10% 16V 0402
2415	3198 035 71040	100nF 10% 16V 0402
2416	3198 035 71040	100nF 10% 16V 0402
2417	4822 124 80151	47µF 16V
2418	4822 124 80151	47µF 16V
2419	3198 035 71040	100nF 10% 16V 0402
2420	3198 035 71040	100nF 10% 16V 0402
2421	3198 035 71040	100nF 10% 16V 0402
2422	3198 035 71040	100nF 10% 16V 0402
2423	3198 035 71040	100nF 10% 16V 0402
2424	3198 035 71040	100nF 10% 16V 0402
2425	3198 035 71040	100nF 10% 16V 0402
2426	3198 035 71040	100nF 10% 16V 0402
2427	3198 035 71040	100nF 10% 16V 0402
2428	3198 035 71040	100nF 10% 16V 0402
2429	3198 035 71040	100nF 10% 16V 0402
2430	3198 035 71040	100nF 10% 16V 0402
2431	3198 035 71040	100nF 10% 16V 0402
2432	3198 035 71040	100nF 10% 16V 0402
2433	3198 035 71040	100nF 10% 16V 0402
2434	4822 124 80151	47µF 16V
2435	4822 124 80151	47µF 16V
2436	3198 035 71040	100nF 10% 16V 0402
2437	3198 035 71040	100nF 10% 16V 0402
2438	3198 035 71040	100nF 10% 16V 0402
2439	3198 035 71040	100nF 10% 16V 0402
2440	3198 035 71040	100nF 10% 16V 0402
2441	3198 035 71040	100nF 10% 16V 0402
2442	3198 035 71040	100nF 10% 16V 0402
2443	3198 035 71040	100nF 10% 16V 0402
2444	3198 035 71040	100nF 10% 16V 0402
2445	3198 035 71040	100nF 10% 16V 0402
2446	3198 035 71040	100nF 10% 16V 0402
2447	3198 035 71040	100nF 10% 16V 0402
2448	3198 035 71040	100nF 10% 16V 0402
2449	3198 035 71040	100nF 10% 16V 0402
2450	3198 035 71040	100nF 10% 16V 0402
2451	4822 124 80151	47µF 16V
2452	3198 035 71040	100nF 10% 16V 0402
2453	3198 035 71040	100nF 10% 16V 0402
2454	3198 035 71040	100nF 10% 16V 0402
2455	3198 035 71040	100nF 10% 16V 0402
2456	3198 035 71040	100nF 10% 16V 0402
2457	2020 552 96675	10µF 10% 16V 1210
2461	3198 035 71040	100nF 10% 16V 0402
2462	3198 035 71040	100nF 10% 16V 0402
2463	3198 035 71040	100nF 10% 16V 0402
2464	3198 035 71040	100nF 10% 16V 0402
2465	5322 124 41945	22µF 20% 35V
2466	3198 035 71040	100nF 10% 16V 0402
2467	3198 035 71040	100nF 10% 16V 0402
2468	3198 035 71040	100nF 10% 16V 0402
2469	3198 035 71040	100nF 10% 16V 0402
2470	5322 124 41945	22µF 20% 35V
2471	3198 035 71040	100nF 10% 16V 0402
2472	3198 035 71040	100nF 10% 16V 0402
2473	3198 035 71040	100nF 10% 16V 0402
2474	3198 035 71040	100nF 10% 16V 0402
2475	3198 035 71040	100nF 10% 16V 0402
2476	3198 035 71040	100nF 10% 16V 0402
2477	3198 035 71040	100nF 10% 16V 0402
2478	5322 124 41945	22µF 20% 35V
2479	3198 035 71040	100nF 10% 16V 0402
2480	3198 035 71040	100nF 10% 16V 0402
2481	3198 035 71040	100nF 10% 16V 0402
2482	5322 124 41945	22µF 20% 35V
2483	3198 035 71040	100nF 10% 16V 0402
2484	3198 035 71040	100nF 10% 16V 0402
2485	3198 035 71040	100nF 10% 16V 0402
2486	3198 035 71040	100nF 10% 16V 0402
2487	4822 126 14519	22pF 5% 50V 0402
2488	4822 126 14519	22pF 5% 50V 0402
2490	2238 586 59812	100nF 20% 50V 0603
2491	2238 586 59812	100nF 20% 50V 0603
2492	2238 586 59812	100nF 20% 50V 0603
2495	4822 124 80151	47µF 16V
2496	3198 035 71040	100nF 10% 16V 0402
2501	4822 124 80151	47µF 16V
2502	4822 124 11131	47µF 6.3V
2503	3198 035 71040	100nF 10% 16V 0402
2504	3198 035 71040	100nF 10% 16V 0402
2505	3198 035 71040	100nF 10% 16V 0402
2506	3198 035 71040	100nF 10% 16V 0402
2507	3198 035 71040	100nF 10% 16V 0402
2508	3198 035 71040	100nF 10% 16V 0402
2509	3198 035 71040	100nF 10% 16V 0402
2510	3198 035 71040	100nF 10% 16V 0402
2511	3198 035 71040	100nF 10% 16V 0402
2512	3198 035 71040	100nF 10% 16V 0402
2513	3198 035 71040	100nF 10% 16V 0402
2514	3198 035 71040	100nF 10% 16V 0402
2515	3198 035 71040	100nF 10% 16V 0402
2516	3198 035 71040	100nF 10% 16V 0402
2517	3198 035 71040	100nF 10% 16V 0402
2530	4822 124 23002	10µF 16V
2531	3198 035 71040	100nF 10% 16V 0402
2532	3198 035 71040	100nF 10% 16V 0402
2533	3198 035 71040	100nF 10% 16V 0402
2560	3198 035 71040	100nF 10% 16V 0402
2561	4822 124 12095	100µF 20% 16V
2562	3198 035 71040	100nF 10% 16V 0402
2563	3198 035 14720	4.7nF 5% 25V 0402
2564	2020 552 96656	10µF 20% 25V 1210
2601	3198 035 71040	100nF 10% 16V 0402
2605	3198 035 71040	100nF 10% 16V 0402
2606	3198 035 71040	100nF 10% 16V 0402
2607	3198 035 71040	100nF 10% 16V 0402
2608	3198 035 71040	100nF 10% 16V 0402
2609	3198 035 71040	100nF 10% 16V 0402
2610	3198 035 71040	100nF 10% 16V 0402
2611	4822 124 11131	47µF 6.3V
2612	2020 552 96628	10nF 10% 16V 0402
2613	2020 552 96628	10nF 10% 16V 0402
2614	2020 552 96628	10nF 10% 16V 0402
2615	2020 552 96628	10nF 10% 16V 0402
2616	2020 552 96628	10nF 10% 16V 0402

2617	2020 552 96628	10nF 10% 16V 0402
2618	2020 552 96628	10nF 10% 16V 0402
2619	4822 126 14324	33pF 5% 50V 0402
2620	2238 586 59812	100nF 20% 50V 0603
2621	2020 552 96834	1μF 20% 6.3V 0402
2622	2020 552 96834	1μF 20% 6.3V 0402
2623	2020 552 96834	1μF 20% 6.3V 0402
2624	3198 017 44740	470nF 10V 0603
2625	3198 017 44740	470nF 10V 0603
2626	3198 017 44740	470nF 10V 0603
2630	2020 552 96834	1μF 20% 6.3V 0402
2631	2020 552 96834	1μF 20% 6.3V 0402
2632	2020 552 96834	1μF 20% 6.3V 0402
2633	2020 552 96834	1μF 20% 6.3V 0402
2634	2020 552 96834	1μF 20% 6.3V 0402
2635	2020 552 96834	1μF 20% 6.3V 0402
2636	3198 035 71040	100nF 10% 16V 0402
2638	3198 035 03310	330pF 5% 50V 0402
2639	3198 035 03310	330pF 5% 50V 0402
2702	2020 552 96834	1μF 20% 6.3V 0402
2703	2020 021 91616	10μF 16V
2707	2020 021 91871	470μF 16V
2708	2020 552 96834	1μF 20% 6.3V 0402
2710	3198 035 04710	470pF 50V 0402
2711	3198 035 04710	470pF 50V 0402
2712	2020 552 96834	1μF 20% 6.3V 0402
2713	2238 586 59812	100nF 20% 50V 0603
2714	2020 021 91871	470μF 16V
2715	2020 021 91871	470μF 16V
2718	2020 552 96834	1μF 20% 6.3V 0402
2719	2238 586 59812	100nF 20% 50V 0603
2735	2020 552 96618	1nF 10% 50V 0402
2736	2020 552 96618	1nF 10% 50V 0402
2737	2020 552 96618	1nF 10% 50V 0402
2738	2020 552 96618	1nF 10% 50V 0402
2739	3198 035 04710	470pF 50V 0402
2740	3198 035 04710	470pF 50V 0402
2741	3198 035 04710	470pF 50V 0402
2742	3198 035 04710	470pF 50V 0402
2743	2020 552 96834	1μF 20% 6.3V 0402
2744	2020 552 96834	1μF 20% 6.3V 0402
2745	2020 021 91557	100μF 20% 16V
2746	3198 017 41050	1μF 10V 0603
2847	3198 017 41050	1μF 10V 0603
2848	3198 017 41050	1μF 10V 0603
2860	2238 869 15189	18pF 5% 50V 0402
2861	2238 869 15189	18pF 5% 50V 0402
2862	2238 869 15189	18pF 5% 50V 0402
2863	2238 869 15189	18pF 5% 50V 0402
2864	2238 869 15189	18pF 5% 50V 0402
2865	2238 869 15189	18pF 5% 50V 0402
2866	2238 869 15189	18pF 5% 50V 0402
2867	2238 869 15189	18pF 5% 50V 0402
2868	2238 869 15189	18pF 5% 50V 0402
2869	2238 869 15189	18pF 5% 50V 0402
2909	2020 021 90913	330μF 10V 10V
2910	3198 035 04710	470pF 50V 0402
2911	3198 030 72290	22μF 20% 35V
2920	4822 124 80151	47μF 16V
2921	4822 124 80151	47μF 16V
2930	2020 021 91871	470μF 16V
2931	3198 035 04710	470pF 50V 0402
2933	2020 021 91871	470μF 16V
2934	2020 552 96793	4.7nF 10% 50V 0402
2935	2020 021 91871	470μF 16V
2937	2020 552 96618	1nF 10% 50V 0402
2938	2020 552 96618	1nF 10% 50V 0402
2939	2020 552 96618	1nF 10% 50V 0402
2940	2020 552 96618	1nF 10% 50V 0402
2941	2020 552 96618	1nF 10% 50V 0402
2942	2020 552 96618	1nF 10% 50V 0402
2953	2020 021 91871	470μF 16V
2955	3198 035 14720	4.7nF 5% 25V 0402
2956	3198 035 02210	220pF 5% 50V 0402
2957	2020 021 91871	470μF 16V
2958	2020 021 91871	470μF 16V
2959	3198 035 71040	100nF 10% 16V 0402
2960	4822 124 80151	47μF 16V
2961	3198 035 71030	10nF 16V 0402
2962	3198 035 71040	100nF 10% 16V 0402
2964	2020 552 96618	1nF 10% 50V 0402
2965	2020 552 96618	1nF 10% 50V 0402
2966	2020 552 96618	1nF 10% 50V 0402
2968	2020 552 96618	1nF 10% 50V 0402
2969	2020 552 96618	1nF 10% 50V 0402
2970	2020 552 96618	1nF 10% 50V 0402
2992	3198 035 71040	100nF 10% 16V 0402
2993	2020 552 96618	1nF 10% 50V 0402
2994	2020 021 91871	470μF 16V
2995	3198 035 71040	100nF 10% 16V 0402
2996	4822 124 80151	47μF 16V

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3000	3198 031 04720	4.7kΩ 5% 0402
3001	2322 702 70398	22kΩ 0603
3002	4822 117 13601	22kΩ 5% 0402
3003	2322 702 70398	3.9Ω
3004	4822 117 13601	22kΩ 5% 0402
3005	3198 031 08210	820Ω 5% 0,5W
3006	4822 117 13545	100Ω 1% 0402
3007	3198 031 04720	4.7kΩ 5% 0402
3008	3198 031 04730	47Ω 5% 0402
3009	4822 117 11297	100kΩ 5% 0.1W
3010	4822 117 13548	1kΩ 5% 0402
3012	3198 031 04730	47Ω 5% 0402
3013	4822 117 13545	100Ω 1% 0402
3014	4822 117 13543	470Ω 5% 0402
3015	4822 117 13605	Jumper 0402
3016	4822 117 13545	100Ω 1% 0402
3017	4822 117 13605	Jumper 0402
3019	4822 117 13545	100Ω 1% 0402
3020	4822 117 13548	1kΩ 5% 0402
3021	2322 706 72702	2.7kΩ 1% 0402
3022	4822 117 13606	10kΩ 5% 0.01W 0402
3023	4822 117 13602	2.2kΩ 5% 0.01W 0402
3024	3198 031 04720	4.7kΩ 5% 0402
3025	2322 706 75603	56kΩ 1% 0402
3026	4822 117 13606	10kΩ 5% 0.01W 0402
3027	3198 031 04720	4.7kΩ 5% 0402
3028	4822 117 11297	100kΩ 5% 0.1W
3029	4822 117 13548	1kΩ 5% 0402
3030	4822 117 11297	100kΩ 5% 0.1W
3031	3198 031 04730	47Ω 5% 0402
3032	3198 031 02240	220kΩ 5% 0.1W 0402
3033	3198 031 04730	47Ω 5% 0402
3035	4822 117 13545	100Ω 1% 0402
3048	4822 117 13606	10kΩ 5% 0.01W 0402
3049	4822 117 13545	100Ω 1% 0402
3050	4822 117 13545	100Ω 1% 0402
3051	4822 117 13545	100Ω 1% 0402
3052	4822 117 13605	Jumper 0402
3054	4822 117 13606	10kΩ 5% 0.01W 0402
3057	2322 706 78201	820Ω 0402
3058	4822 117 13543	470Ω 5% 0402
3059	4822 117 13548	1kΩ 5% 0402
3060	3198 031 03930	39kΩ 5% 0402
3061	3198 031 01820	1.8kΩ 5% 0.01W 0402
3062	4822 117 13605	Jumper 0402
3063	4822 117 13548	1kΩ 5% 0402
3064	4822 117 13545	100Ω 1% 0402
3065	3198 031 04720	4.7kΩ 5% 0402
3066	3198 031 04720	4.7kΩ 5% 0402
3067	4822 117 13545	100Ω 1% 0402
3068	4822 117 13548	1kΩ 5% 0402
3069	4822 117 13548	1kΩ 5% 0402
3070	4822 117 13545	100Ω 1% 0402
3071	4822 117 13545	100Ω 1% 0402
3073	3198 031 01530	15kΩ 5% 0.01W 0402
3074	4822 117 11297	100kΩ 5% 0.1W
3075	3198 031 04720	4.7kΩ 5% 0402
3076	3198 031 06810	680Ω 5% 0.01W 0402
3077	3198 031 04720	4.7kΩ 5% 0402
3078	3198 031 04720	4.7kΩ 5% 0402
3079	3198 031 04720	4.7kΩ 5% 0402
3080	2322 704 61002	1kΩ 1%
3081	4822 117 13545	100Ω 1% 0402
3082	3198 031 04720	4.7kΩ 5% 0402
3083	3198 031 04720	4.7kΩ 5% 0402
3084	4822 117 13545	100Ω 1% 0402
3085	3198 031 04720	4.7kΩ 5% 0402
3086	4822 117 13602	2.2kΩ 5% 0.01W 0402
3087	4822 117 13606	10kΩ 5% 0.01W 0402
3088	3198 031 03320	3.3kΩ 5% 0402
3089	3198 031 01540	150kΩ 5% 0402
3091	4822 117 13545	100Ω 1% 0402
3092	3198 031 04720	4.7kΩ 5% 0402
3093	3198 031 04720	4.7kΩ 5% 0402
3094	3198 031 01090	10Ω 5% 0.01W 0402
3096	3198 031 03320	3.3kΩ 5% 0402
3097	3198 031 04720	4.7kΩ 5% 0402
3098	4822 117 13601	22kΩ 5% 0402
3302	4822 051 30101	100Ω 5% 0.062W
3303	4822 051 30101	100Ω 5% 0.062W
3304	4822 117 13606	10kΩ 5% 0.01W 0402
3305	4822 117 13606	10kΩ 5% 0.01W 0402
3309	4822 117 13606	10kΩ 5% 0.01W 0402
3311	4822 051 30103	10kΩ 5% 0.062W
3314	4822 117 13632	100kΩ 1% 0603 0.62W
3315	4822 051 30154	150kΩ 5% 0.062W
3316	4822 117 12968	820Ω 5% 0.62W
3317	4822 051 30561	560Ω 5% 0.062W
3319	4822 051 30273	27kΩ 5% 0.062W
3320	4822 051 30183	18kΩ 5% 0.062W

3321	4822 051 30222	2.2kΩ 5% 0.062W
3322	4822 051 30682	6.8Ω 5% 0.062W
3323	4822 051 30222	2.2kΩ 5% 0.062W
3327	4822 117 13548	1kΩ 5% 0402
3328	4822 117 13545	100Ω 1% 0402
3329	4822 117 13545	100Ω 1% 0402
3357	4822 117 13548	1kΩ 5% 0402
3358	4822 117 13545	100Ω 1% 0402
3359	3198 031 03910	390Ω 1% 0402
3370	3198 031 06810	680Ω 5% 0.01W 0402
3371	4822 117 13545	100Ω 1% 0402
3372	4822 117 13545	100Ω 1% 0402
3374	5322 117 11726	10Ω 5%
3378	4822 117 13545	100Ω 1% 0402
3380	4822 117 13606	10kΩ 5% 0.01W 0402
3381	4822 117 13606	10kΩ 5% 0.01W 0402
3382	4822 117 13606	10kΩ 5% 0.01W 0402
3383	4822 117 13606	10kΩ 5% 0.01W 0402
3386	4822 117 13545	100Ω 1% 0402
3389	4822 117 13545	100Ω 1% 0402
3390	4822 117 13545	100Ω 1% 0402
3391	4822 117 13545	100Ω 1% 0402
3392	4822 117 13545	100Ω 1% 0402
3393	4822 117 13545	100Ω 1% 0402
3394	3198 031 07590	75Ω 5% 0402
3401	3198 031 13390	33Ω
3402	3198 031 13390	33Ω
3403	3198 031 13390	33Ω
3404	3198 031 13390	33Ω
3405	3198 031 13390	33Ω
3406	3198 031 13390	33Ω
3407	3198 031 13390	33Ω
3408	3198 031 13390	33Ω
3409	3198 031 13390	33Ω
3410	3198 031 13390	33Ω
3411	3198 031 13390	33Ω
3412	3198 031 13390	33Ω
3413	3198 031 13390	33Ω
3414	3198 031 03390	33Ω 1% 0402
3422	3198 031 03390	33Ω 1% 0402
3423	3198 031 03320	3.3kΩ 5% 0402
3424	2322 704 61501	150Ω 1% 0603
3425	4822 117 13606	10kΩ 5% 0.01W 0402
3426	3198 031 03320	3.3kΩ 5% 0402
3432	4822 117 13606	10kΩ 5% 0.01W 0402
3433	4822 117 13606	10kΩ 5% 0.01W 0402
3434	4822 117 13606	10kΩ 5% 0.01W 0402
3436	4822 117 13606	10kΩ 5% 0.01W 0402
3437	4822 117 13606	10kΩ 5% 0.01W 0402
3438	3198 031 11030	10kΩ 5% 1206
3439	3198 031 11030	10kΩ 5% 1206
3440	3198 031 11030	10kΩ 5% 1206
3441	3198 031 11030	10kΩ 5% 1206
3442	3198 031 11030	10kΩ 5% 1206
3443	4822 117 13606	10kΩ 5% 0.01W 0402
3444	3198 031 04730	47Ω 5% 0402
3446	5322 117 13017	100Ω 1% 0.063W 0603
3447	3198 031 03390	33Ω 1% 0402
3448	3198 031 01090	10Ω 5% 0.01W 0402
3450	3198 031 04730	47Ω 5% 0402
3451	3198 031 04720	4.7kΩ 5% 0402
3452	3198 031 04720	4.7kΩ 5% 0402
3501	4822 117 13606	10kΩ 5% 0.01W 0402
3502	4822 117 13606	10kΩ 5% 0.01W 0402
3503	2322 704 61501	150Ω 1% 0603
3531	4822 117 13606	10kΩ 5% 0.01W 0402
3532	4822 117 13606	10kΩ 5% 0.01W 0402
3534	4822 117 13548	1kΩ 5% 0402
3536	4822 117 13606	10kΩ 5% 0.01W 0402
3538	3198 031 11030	10kΩ 5% 1206
3539	3198 031 11030	10kΩ 5% 1206
3540	3198 031 11030	10kΩ 5% 1206
3544	3198 031 11030	10kΩ 5% 1206
3545	3198 031 11030	10kΩ 5% 1206
3546	3198 031 11030	10kΩ 5% 1206
3547	3198 031 11030	10kΩ 5% 1206
3548	4822 117 13606	10kΩ 5% 0.01W 0402
3551	4822 051 30008	Jumper 0603
3560	4822 117 11297	100kΩ 5% 0.1W
3561	4822 117 11297	100kΩ 5% 0.1W
3562	4822 117 11297	100kΩ 5% 0.1W
3563	4822 117 13548	1kΩ 5% 0402
3564	4822 117 13548	1kΩ 5% 0402
3565	3198 031 01220	1.2kΩ 5% 0.01W 0402
3566	4822 117 13548	1kΩ 5% 0402
3605	4822 117 13545	100Ω 1% 0402
3606	4822 117 13545	100Ω 1% 0402
3607	4822 117 13545	100Ω 1% 0402
3608	4822 117 13545	100Ω 1% 0402
3609	4822 117 13545	100Ω 1% 0402
3610	4822 117 13601	22kΩ 5% 0402
3612	4822 117 13543	470Ω 5% 0402
3613	3198 031 02290	22Ω 5% 0.1W 0402
3614	3198 031 02290	22Ω 5% 0.1W 0402

3615	3198 031 02290	22Ω 5% 0.1W 0402
3616	3198 031 02290	22Ω 5% 0.1W 0402
3617	3198 031 02290	22Ω 5% 0.1W 0402
3618	3198 031 02290	22Ω 5% 0.1W 0402
3619	3198 031 08210	820Ω 5% 0,5W
3620	4822 117 13632	100kΩ 1% 0603 0.62W
3621	4822 117 13601	22kΩ 5% 0402
3622	4822 117 13601	22kΩ 5% 0402
3623	4822 117 13601	22kΩ 5% 0402
3624	4822 117 13601	22kΩ 5% 0402
3625	4822 117 13601	22kΩ 5% 0402
3626	4822 117 13601	22kΩ 5% 0402
3633	4822 117 13545	100Ω 1% 0402
3634	4822 117 13545	100Ω 1% 0402
3635	4822 117 13545	100Ω 1% 0402
3640	4822 117 13602	2.2kΩ 5% 0.01W 0402
3641	4822 117 13597	330Ω 5% 0402 0.01W
3642	4822 117 13597	330Ω 5% 0402 0.01W
3643	4822 117 13597	330Ω 5% 0402 0.01W
3644	4822 117 13597	330Ω 5% 0402 0.01W
3645	4822 117 13597	330Ω 5% 0402 0.01W
3646	4822 117 13597	330Ω 5% 0402 0.01W
3703	4822 117 13606	10kΩ 5% 0.01W 0402
3706	4822 117 13606	10kΩ 5% 0.01W 0402
3711	4822 117 13605	Jumper 0402
3712	4822 117 13606	10kΩ 5% 0.01W 0402
3714	3198 031 08220	8.2kΩ 5% 0.5W
3715	3198 031 01820	1.8kΩ 5% 0.01W 0402
3717	4822 117 13606	10kΩ 5% 0.01W 0402
3718	4822 117 13605	Jumper 0402
3719	4822 117 13606	10kΩ 5% 0.01W 0402
3722	3198 031 08220	8.2kΩ 5% 0.5W
3725	4822 117 13606	10kΩ 5% 0.01W 0402
3726	3198 031 08220	8.2kΩ 5% 0.5W
3727	3198 031 01820	1.8kΩ 5% 0.01W 0402
3730	4822 117 13606	10kΩ 5% 0.01W 0402
3731	4822 117 13543	470Ω 5% 0402
3732	4822 117 13548	1kΩ 5% 0402
3733	4822 117 13543	470Ω 5% 0402
3735	3198 031 02280	2.2Ω 5% 0.1W 0402
3736	3198 031 02280	2.2Ω 5% 0.1W 0402
3737	3198 031 02280	2.2Ω 5% 0.1W 0402
3738	3198 031 02280	2.2Ω 5% 0.1W 0402
3739	4822 117 13601	22kΩ 5% 0402
3740	4822 117 13601	22kΩ 5% 0402
3741	4822 117 11297	100kΩ 5% 0.1W
3742	4822 117 13601	22kΩ 5% 0402
3743	4822 117 13601	22kΩ 5% 0402
3744	4822 117 13606	10kΩ 5% 0.01W 0402
3745	4822 117 11297	100kΩ 5% 0.1W
3746	4822 117 11297	100kΩ 5% 0.1W
3747	4822 117 11297	100kΩ 5% 0.1W
3748	4822 117 13606	10kΩ 5% 0.01W 0402
3749	4822 117 13606	10kΩ 5% 0.01W 0402
3750	3198 031 06830	68kΩ 5% 0.01W 0402
3751	3198 031 06830	68kΩ 5% 0.01W 0402
3836	4822 117 13606	10kΩ 5% 0.01W 0402
3838	4822 117 13606	10kΩ 5% 0.01W 0402
3910	4822 117 13602	2.2kΩ 5% 0.01W 0402
3911	4822 117 13548	1kΩ 5% 0402
3930	4822 117 12917	1Ω 5% 0.062W
3931	4822 117 12917	1Ω 5% 0.062W
3932	2322 704 61002	1kΩ 1%
3933	2322 704 63302	3.3kΩ 1% 0603
3951	4822 117 12917	1Ω 5% 0.062W
3952	4822 117 12917	1Ω 5% 0.062W
3953	2322 704 61002	1kΩ 1%
3954	2322 704 63302	3.3kΩ 1% 0603
3955	4822 117 13606	10kΩ 5% 0.01W 0402
3958	3198 031 01530	15kΩ 5% 0.01W 0402
4xxx	4822 117 13605	Jumper 0402

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5001	2422 536 00667	1mF 20%
5002	4822 157 11716	Bead 30Ω 100MHz
5003	4822 157 11716	Bead 30Ω at 100MHz
5004	4822 157 11716	Bead 30Ω at 100MHz
5005	4822 157 11716	Bead 30Ω at 100MHz
5006	4822 157 11716	Bead 30Ω at 100MHz
5007	4822 157 11716	Bead 30Ω at 100MHz
5008	4822 157 11716	Bead 30Ω at 100MHz
5010	3198 018 64790	47µH
5060	4822 157 11716	Bead 30Ω at 100MHz
5070	4822 157 11716	Bead 30Ω at 100MHz
5071	2422 549 42896	Bead 120Ω 100MHz
5072	2422 549 42896	Bead 120Ω 100MHz
5304	4822 157 11499	Bead 60Ω 100MHz
5309	3198 018 31290	12µH 10%
5321	3198 018 33970	0.39µH
5324	4822 157 71334	0.68µH
5370	4822 157 11716	Bead 30Ω at 100MHz
5371	4822 157 11716	Bead 30Ω at 100MHz
5372	2422 549 44197	Bead 220Ω at 100MHz
5530	2422 549 45333	Bead 120Ω 100MHz
5560	4822 157 11716	Bead 30Ω at 100MHz
5605	2422 549 45333	Bead 120Ω 100MHz
5607	2422 549 45333	Bead 120Ω 100MHz
5636	2422 549 45333	Bead 120Ω 100MHz
5646	2422 549 42896	Bead 120Ω 100MHz
5909	2422 549 45843	100MHZ
5910	2422 536 00667	1000µF 20% 7032
5920	2422 549 45333	Bead 120Ω 100MHz
5930	2422 535 94134	10µH 20% 0805
5931	2422 536 00689	220µH
5932	2422 535 94134	10µH 20% 0805
5952	2422 535 94134	10µH 20% 0805
5953	2422 536 00689	220µH
5954	2422 535 94134	10µH 20% 0805
5956	2422 549 45333	Bead 120Ω 100MHz
5958	2422 549 45333	Bead 120Ω 100MHz
5959	2422 549 45333	Bead 120Ω 100MHz
5984	2422 549 45333	Bead 120Ω 100MHz
5985	2422 549 45333	Bead 120Ω 100MHz
5986	2422 549 45333	Bead 120Ω 100MHz
5987	2422 549 45333	Bead 120Ω 100MHz
5988	2422 549 45333	Bead 120Ω 100MHz
5989	2422 549 45333	Bead 120Ω 100MHz
5990	2422 549 45333	Bead 120Ω 100MHz
5991	2422 549 45333	Bead 120Ω 100MHz
5994	2422 549 45333	Bead 120Ω 100MHz
5996	2422 549 45333	Bead 120Ω 100MHz
5997	2422 549 45333	Bead 120Ω 100MHz
5998	2422 549 45333	Bead 120Ω 100MHz

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6001	4822 130 11397	BAS316
6002	4822 130 11397	BAS316
6005	9340 553 52115	BAS321
6020	4822 130 11397	BAS316
6021	4822 130 11397	BAS316
6073	4822 130 80622	BAT54
6076	4822 130 80622	BAT54
6310	4822 130 11397	BAS316
6323	4822 130 11525	1SS356
6328	4822 130 11416	PDZ6.8B
6329	4822 130 11416	PDZ6.8B
6563	9322 102 64685	UDZ2.7B
6564	4822 130 11416	PDZ6.8B
6604	4822 130 11397	BAS316
6605	4822 130 11397	BAS316
6634	9322 102 64685	UDZ2.7B
6635	9322 102 64685	UDZ2.7B
6640	9322 102 64685	UDZ2.7B
6910	5322 130 34337	BAV99
6911	9340 548 71115	PDZ33B
6930	9322 128 70685	SMSS14
6951	9322 128 70685	SMSS14

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7001	9339 693 90135	BCP69-25
7002	9340 425 20115	BC847BS
7003	9339 693 90135	BCP69-25
7005	9340 547 13215	BSH103
7011	9352 747 88557	TDA12021H/N1B11
7012	3198 010 42310	BC847BW
7013	3198 010 42310	BC847BW
7014	3198 010 42310	BC847BW
7015	9322 208 05668	NE555D
7016	9322 208 05668	NE555D
7017	9322 208 05668	NE555D
7018	5322 130 60159	BC846B
7019	5322 130 60159	BC846B
7068	3198 010 42310	BC847BW
7070	9340 547 13215	BSH103
7099	4822 209 17226	M24C08-WMN6
7316	5322 130 42718	BFS20
7320	3198 010 42310	BC847BW
7370	9340 550 49115	PUMH7
7371	9340 550 49115	PUMH7
7372	9340 550 49115	PUMH7
7376	9340 425 10115	BC857BS
7377	9340 425 10115	BC857BS
7401	9322 206 86671	GM1501-BD
7449	3198 010 42310	BC847BW
7501	9322 199 17671	K4D263238M-QC50
7530	9322 205 12671	MX29LV040QC-70G
7531	9322 156 81668	M24C32-WMN6TNKSA
7532	9352 691 71115	NE56610-27GW
7560	9352 334 10118	TDA9178T/N1
7562	9322 199 24668	L7808CD2T
7563	4822 209 73852	PMBT2369
7604	9352 607 39118	74LVC14APW
7605	4822 209 60792	74HC4053D
7606	9322 199 56668	ADG781BCP
7607	9322 199 80668	SM5301BS-G
7640	4822 130 11155	PDTC114ET
7702	9340 425 20115	BC847BS
7703	9340 425 20115	BC847BS
7706	9351 742 70118	74HC08PW
7708	9340 550 49115	PUMH7
7709	9322 206 09668	TDA7297D
7710	3198 010 42310	BC847BW
7740	9322 183 05668	TS482ID
7910	4822 130 42804	BC817-25
7920	9322 163 24668	L78M08CDT
7930	5322 209 90529	MC34063AD
7952	5322 209 90529	MC34063AD
7954	9322 157 51685	SI12301DS
7955	4822 130 11155	PDTC114ET
7992	9322 142 88668	LF25CDT
7995	9322 189 19668	LD1086D2T18

Side AV/HP Panel [D]

Various

1301	2422 025 14531	20P Female
1302	2422 025 04854	6P Female
1306	2422 026 05059	Conector Phone
1307	4822 267 10484	YKF51-5359
8540	3139 131 03641	Cable 6P

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2301	3198 017 41050	1µF 10V 0603
2302	4822 126 14241	330pF 0603 50V
2303	3198 017 41050	1µF 10V 0603
2304	4822 126 14241	330pF 0603 50V
2305	4822 126 14241	330pF 0603 50V
2306	4822 126 14241	330pF 0603 50V
2326	3198 017 41050	1µF 10V 0603

-WW-

3301	4822 051 30331	330Ω 5% 0.062W
3302	4822 051 30339	33Ω 5% 0.062W
3303	4822 051 30221	220Ω 5% 0.062W
3304	4822 051 30223	22kΩ 5% 0.062W
3305	4822 117 12925	47kΩ 1% 0.063W 0603
3306	4822 051 30759	75Ω 5% 0.062W
3307	4822 051 30223	22kΩ 5% 0.062W
3308	4822 117 12925	47kΩ 1% 0.063W 0603
3316	4822 051 30339	33Ω 5% 0.062W
3318	4822 051 30151	150Ω 5% 0.062W
3319	4822 051 30391	390Ω 5% 0.062W
3320	4822 117 12903	1.8kΩ 1% 0.063W 0603
3321	4822 117 12968	820Ω 5% 0.62W
3322	4822 051 30008	Jumper 0603
3323	4822 051 30008	Jumper 0603
3325	4822 051 30759	75Ω 5% 0.062W
3326	4822 051 30102	1kΩ 5% 0.062W
3327	4822 117 13632	100kΩ 1% 0603 0.62W
3328	4822 051 30101	100Ω 5% 0.062W
3329	4822 051 30563	56kΩ 5% 0.062W
4xxx	4822 051 30008	Jumper 0603

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6306	4822 130 11148	UDZ4.7B

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7326	4822 130 60373	BC856B

IO Panel [H]

Various

1101	2422 025 14911	21p Female
1102	2422 025 14911	21p Female
1103	2422 025 18249	45P Female
1104	2422 025 14551	20P Female
1105	4822 267 31014	Socket headphone
1680	2422 033 00007	Socket DVI 24P
1687	2438 031 00416	Connector 15P Female
1688	4822 267 31014	Socket headphone
1698	2422 025 18249	45P Female
8103▲	3139 131 03511	FFC Foil 45P
8698▲	3139 131 03511	FFC Foil 45P

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2101	4822 126 14241	330pF 0603 50V
2102	4822 124 23002	10µF 16V
2103	4822 126 14241	330pF 0603 50V
2104	3198 017 41050	1µF 10V 0603
2105	4822 126 14241	330pF 0603 50V
2106	4822 124 23002	10µF 16V
2107	4822 126 14241	330pF 0603 50V
2108	3198 017 41050	1µF 10V 0603
2109	4822 126 13881	470pF 5% 50V
2110	4822 126 13881	470pF 5% 50V
2111	4822 126 13881	470pF 5% 50V
2112	4822 126 13881	470pF 5% 50V
2119	3198 017 41050	1µF 10V 0603
2126	4822 124 23002	10µF 16V
2127	4822 126 14241	330pF 0603 50V
2128	2238 586 59812	100nF 20% 50V 0603
2129	4822 126 14241	330pF 0603 50V
2130	4822 124 23002	10µF 16V
2131	4822 126 14241	330pF 0603 50V
2132	2238 586 59812	100nF 20% 50V 0603
2133	4822 126 14241	330pF 0603 50V
2134	4822 126 13881	470pF 5% 50V
2135	4822 126 13881	470pF 5% 50V
2136	4822 126 13881	470pF 5% 50V
2137	4822 126 13881	470pF 5% 50V
2138	3198 017 41050	1µF 10V 0603
2147	4822 124 23002	10µF 16V
2148	4822 124 23002	10µF 16V
2152	4822 126 14241	330pF 0603 50V
2153	4822 126 14241	330pF 0603 50V
2155	4822 126 14241	330pF 0603 50V
2157	4822 126 14241	330pF 0603 50V
2169	4822 124 23002	10µF 16V
2683	3198 017 41050	1µF 10V 0603
2684	3198 017 41050	1µF 10V 0603
2687	3198 017 41050	1µF 10V 0603
2693	2238 586 59812	100nF 20% 50V 0603
2694	2238 586 59812	100nF 20% 50V 0603
2698	2020 552 94427	100pF 5% 50V
2699	2020 552 94427	100pF 5% 50V
2700	4822 126 14241	330pF 0603 50V
2701	4822 126 14241	330pF 0603 50V
2702	4822 126 14241	330pF 0603 50V
2703	4822 126 14241	330pF 0603 50V
2704	4822 126 14241	330pF 0603 50V
2705	4822 126 14241	330pF 0603 50V

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3101	4822 051 30151	150Ω 5% 0.062W
3102	4822 117 12891	220kΩ 1%
3103	4822 051 30223	22kΩ 5% 0.062W
3104	4822 117 12925	47kΩ 1% 0.063W 0603
3105	4822 051 30151	150Ω 5% 0.062W
3106	4822 117 12891	220kΩ 1%
3107	4822 117 12925	47kΩ 1% 0.063W 0603
3108	4822 051 30223	22kΩ 5% 0.062W
3109	4822 051 30759	75Ω 5% 0.062W
3110	4822 051 30331	330Ω 5% 0.062W
3111	4822 051 30273	27kΩ 5% 0.062W
3112	4822 051 30682	6.8Ω 5% 0.062W
3113	4822 051 30759	75Ω 5% 0.062W
3114	4822 051 30331	330Ω 5% 0.062W
3115	4822 051 30759	75Ω 5% 0.062W
3116	4822 051 30331	330Ω 5% 0.062W
3117	4822 051 30331	330Ω 5% 0.062W
3118	4822 051 30759	75Ω 5% 0.062W
3119	4822 051 30689	68Ω 5% 0.063W 0603
3121	4822 051 30759	75Ω 5% 0.062W
3122	4822 051 30331	330Ω 5% 0.062W
3123	4822 051 30102	1kΩ 5% 0.062W
3124	4822 117 13632	100kΩ 1% 0603 0.62W
3125	4822 117 13632	100kΩ 1% 0603 0.62W
3126	4822 117 12891	220kΩ 1%
3127	4822 051 30151	150Ω 5% 0.062W
3128	4822 117 12925	47kΩ 1% 0.063W 0603
3129	4822 051 30223	22kΩ 5% 0.062W
3130	4822 117 12891	220kΩ 1%
3131	4822 051 30151	150Ω 5% 0.062W
3132	4822 117 12925	47kΩ 1% 0.063W 0603
3133	4822 051 30223	22kΩ 5% 0.062W
3134	4822 051 30682	6.8Ω 5% 0.062W
3135	4822 051 30273	27kΩ 5% 0.062W
3136	4822 051 30331	330Ω 5% 0.062W
3137	4822 051 30759	75Ω 5% 0.062W
3138	4822 117 13632	100kΩ 1% 0603 0.62W
3139	4822 117 13632	100kΩ 1% 0603 0.62W
3140	4822 051 30689	68Ω 5% 0.063W 0603
3141	4822 051 30102	1kΩ 5% 0.062W
3142	4822 051 30331	330Ω 5% 0.062W
3143	4822 051 30759	75Ω 5% 0.062W
3152	4822 117 12891	220kΩ 1%
3153	4822 051 30151	150Ω 5% 0.062W
3155	4822 117 12891	220kΩ 1%
3156	4822 051 30151	150Ω 5% 0.062W
3157	4822 051 30339	33Ω 5% 0.062W
3158	4822 051 30102	1kΩ 5% 0.062W
3169	4822 051 30479	47Ω 5% 0.062W
3681	4822 051 30008	Jumper 0603
3682	4822 051 30103	10kΩ 5% 0.062W
3683	4822 051 30759	75Ω 5% 0.062W
3684	4822 051 30759	75Ω 5% 0.062W
3686	4822 051 30008	Jumper 0603
3687	4822 051 30759	75Ω 5% 0.062W
3691	4822 051 30101	100Ω 5% 0.062W
3693	4822 051 30103	10kΩ 5% 0.062W
3694	4822 051 30103	10kΩ 5% 0.062W
3696	4822 051 30103	10kΩ 5% 0.062W
3697	4822 051 30103	10kΩ 5% 0.062W
3698	4822 051 30223	22kΩ 5% 0.062W
3699	4822 051 30223	22kΩ 5% 0.062W
3700	4822 117 12925	47kΩ 1% 0.063W 0603
3701	4822 117 12925	47kΩ 1% 0.063W 0603
3704	4822 051 30103	10kΩ 5% 0.062W
3705	4822 051 30103	10kΩ 5% 0.062W
3710	4822 051 30102	1kΩ 5% 0.062W
4106	4822 051 30008	Jumper 0603

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5683	2422 549 45333	Bead 120Ω 100MHz
5684	2422 549 45333	Bead 120Ω 100MHz
5687	2422 549 45333	Bead 120Ω 100MHz
5692	2422 549 45333	Bead 120Ω 100MHz

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6121	4822 130 11416	PDZ6.8B
6143	4822 130 11416	PDZ6.8B
6691	4822 130 11397	BAS316
6692	4822 130 11397	BAS316

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7119	5322 130 60159	BC846B
7138	5322 130 60159	BC846B
7693	9322 145 26668	M24C02-WMN6
7694	9322 145 26668	M24C02-WMN6

Front Interface + Keyboard [J]

Various

0041	3139 124 60061	Lens
8704	3139 131 03781	Cable 4P

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2540	4822 124 41643	100µF 20% 16V
2541	3198 017 41050	1µF 10V 0603

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3540	4822 051 30331	330Ω 5% 0.062W
3542	4822 051 30221	220Ω 5% 0.062W
3544	4822 051 30332	3.3Ω 5% 0.062W
3547	3198 021 32250	2.2MΩ 5% 0603
4540	4822 051 30008	Jumper 0603
4541	4822 051 30008	Jumper 0603
4542	4822 051 30008	Jumper 0603

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6540	9322 192 35676	SPR-325MVW

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7540	4822 130 60373	BC856B
7541	5322 130 60159	BC846B
7542	5322 130 60159	BC846B
7543	9322 190 34682	BPW34

Pixel Plus Panel [PP]

Various

1001	2422 025 17192	Connector 9p m
1002	2422 025 18314	Connector 20p m v 1.25
1003	2422 025 18314	Connector 20p m v 1.25
1206	2422 549 45325	Bead 67Ω at 100MHz
1207	2422 549 45325	Bead 67Ω at 100MHz
1209	2422 549 45325	Bead 67Ω at 100MHz
1210	2422 549 45325	Bead 67Ω at 100MHz
1211	2422 549 45325	Bead 67Ω at 100MHz
1403	2422 549 45325	Bead 67Ω at 100MHz
1404	2422 549 45325	Bead 67Ω at 100MHz
1405	2422 549 45325	Bead 67Ω at 100MHz
1406	2422 549 45325	Bead 67Ω at 100MHz
1407	2422 549 45325	Bead 67Ω at 100MHz

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2101	2020 552 94427	100pF 5% 50V
2102	2020 552 94427	100pF 5% 50V
2103	2020 552 94427	100pF 5% 50V
2104	2020 552 94427	100pF 5% 50V
2105	2238 586 59812	100nF 20% 50V 0603
2106	2020 552 94427	100pF 5% 50V
2107	2238 586 59812	100nF 20% 50V 0603
2108	2022 552 05614	1µF 10% 6V3 0603
2110	3198 016 31020	1nF 25V 0603
2112	2238 586 59812	100nF 20% 50V 0603
2113	2238 586 59812	100nF 20% 50V 0603
2114	2022 552 05682	2.2µF 10% 6.3V
2115	2238 586 59812	100nF 20% 50V 0603
2116	2022 552 05682	2.2µF 10% 6.3V
2121	2238 586 59812	100nF 20% 50V 0603
2122	2238 586 59812	100nF 20% 50V 0603
2123	2238 586 59812	100nF 20% 50V 0603
2124	2238 586 59812	100nF 20% 50V 0603
2130	2238 586 59812	100nF 20% 50V 0603
2131	2238 586 59812	100nF 20% 50V 0603
2132	2238 586 59812	100nF 20% 50V 0603
2133	2238 586 59812	100nF 20% 50V 0603
2134	2238 586 59812	100nF 20% 50V 0603
2135	2022 552 05682	2.2µF 10% 6.3V
2136	2238 586 59812	100nF 20% 50V 0603
2139	2238 586 59812	100nF 20% 50V 0603
2140	2238 586 59812	100nF 20% 50V 0603
2141	2238 586 59812	100nF 20% 50V 0603
2142	2238 586 59812	100nF 20% 50V 0603
2143	2238 586 59812	100nF 20% 50V 0603
2144	2238 586 59812	100nF 20% 50V 0603
2145	2238 586 59812	100nF 20% 50V 0603
2146	2238 586 59812	100nF 20% 50V 0603
2147	2238 586 59812	100nF 20% 50V 0603
2148	2238 586 59812	100nF 20% 50V 0603
2149	2238 586 59812	100nF 20% 50V 0603
2150	2238 586 59812	100nF 20% 50V 0603
2201	2238 586 59812	100nF 20% 50V 0603
2202	2238 586 59812	100nF 20% 50V 0603
2203	2238 586 59812	100nF 20% 50V 0603
2204	2238 586 59812	100nF 20% 50V 0603
2205	2238 586 59812	100nF 20% 50V 0603
2206	3198 016 31080	1pF 25% 50V 0603
2207	3198 016 31080	1pF 25% 50V 0603
2208	3198 016 31080	1pF 25% 50V 0603
2209	3198 016 31080	1pF 25% 50V 0603
2210	3198 016 31080	1pF 25% 50V 0603
2211	3198 016 31080	1pF 25% 50V 0603
2212	3198 016 31080	1pF 25% 50V 0603
2213	3198 016 31080	1pF 25% 50V 0603
2214	3198 016 31080	1pF 25% 50V 0603
2215	3198 016 31080	1pF 25% 50V 0603
2216	2238 586 59812	100nF 20% 50V 0603
2401	2238 586 59812	100nF 20% 50V 0603
2402	2238 586 59812	100nF 20% 50V 0603
2403	2238 586 59812	100nF 20% 50V 0603
2404	2238 586 59812	100nF 20% 50V 0603
2405	2238 586 59812	100nF 20% 50V 0603
2406	3198 016 31080	1pF 25% 50V 0603
2407	3198 016 31080	1pF 25% 50V 0603
2408	3198 016 31080	1pF 25% 50V 0603
2409	3198 016 31080	1pF 25% 50V 0603
2410	3198 016 31080	1pF 25% 50V 0603
2411	3198 016 31080	1pF 25% 50V 0603
2412	3198 016 31080	1pF 25% 50V 0603
2413	3198 016 31080	1pF 25% 50V 0603
2414	3198 016 31080	1pF 25% 50V 0603
2415	3198 016 31080	1pF 25% 50V 0603
2419	2238 586 59812	100nF 20% 50V 0603
2502	2238 586 59812	100nF 20% 50V 0603
2503	4822 124 12095	100µF 20% 16V
2504	2238 586 59812	100nF 20% 50V 0603
2505	2022 552 05682	2.2µF 10% 6.3V
2508	4822 122 33761	22pF 5% 50V
2509	4822 122 33761	22pF 5% 50V
2515	2238 586 59812	100nF 20% 50V 0603
2516	4822 122 33761	22pF 5% 50V
2520	4822 122 33761	22pF 5% 50V

2522	5322 126 11583	10nF 10% 50V 0603

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3101	4822 051 30103	10kΩ 5% 0.062W
3102	4822 051 30479	47Ω 5% 0.062W
3103	4822 051 30479	47Ω 5% 0.062W
3104	4822 051 30103	10kΩ 5% 0.062W
3105	4822 051 30103	10kΩ 5% 0.062W
3106	4822 051 30103	10kΩ 5% 0.062W
3107	4822 051 30103	10kΩ 5% 0.062W
3108	4822 051 30103	10kΩ 5% 0.062W
3109	4822 051 30103	10kΩ 5% 0.062W
3110	4822 051 30479	47Ω 5% 0.062W
3111	4822 051 30103	10kΩ 5% 0.062W
3112	4822 051 30103	10kΩ 5% 0.062W
3113	4822 051 30103	10kΩ 5% 0.062W
3114	4822 051 30479	47Ω 5% 0.062W
3115	4822 051 30102	1kΩ 5% 0.062W
3116	4822 051 30333	33kΩ 5% 0.062W
3117	4822 051 30103	10kΩ 5% 0.062W
3118	4822 051 30333	33kΩ 5% 0.062W
3122	4822 051 30479	47Ω 5% 0.062W
3125	4822 051 30479	47Ω 5% 0.062W
3202	4822 051 30472	4.7Ω 5% 0.062W
3204	4822 051 30101	100Ω 5% 0.062W
3207	4822 051 30101	100Ω 5% 0.062W
3210	4822 051 30101	100Ω 5% 0.062W
3213	4822 051 30101	100Ω 5% 0.062W
3216	4822 051 30101	100Ω 5% 0.062W
3402	4822 051 30479	47Ω 5% 0.062W
3403	4822 051 30102	1kΩ 5% 0.062W
3406	4822 051 30472	4.7Ω 5% 0.062W
3407	4822 051 30101	100Ω 5% 0.062W
3421	4822 051 30479	47Ω 5% 0.062W
3510	4822 051 30472	4.7Ω 5% 0.062W
3512	4822 051 30103	10kΩ 5% 0.062W
3513	4822 051 30102	1kΩ 5% 0.062W
3515	4822 051 30472	4.7Ω 5% 0.062W
3519	4822 051 30472	4.7Ω 5% 0.062W
3520	4822 051 30472	4.7Ω 5% 0.062W

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5101	4822 157 11716	Bead 30Ω at 100MHz
5104	4822 157 11716	Bead 30Ω at 100MHz
5105	4822 157 11716	Bead 30Ω at 100MHz
5106	4822 157 11716	Bead 30Ω at 100MHz
5107	4822 157 11716	Bead 30Ω at 100MHz
5201	4822 157 11716	Bead 30Ω at 100MHz
5202	4822 157 11716	Bead 30Ω at 100MHz
5203	4822 157 11716	Bead 30Ω at 100MHz
5401	4822 157 11716	Bead 30Ω at 100MHz
5402	4822 157 11716	Bead 30Ω at 100MHz
5403	4822 157 11716	Bead 30Ω at 100MHz

7101	9322 200 14671	EP1C12F256C8
7102	3122 357 00601	Softw. (See Prod.Surv.)
7108	2722 171 08825	Xtal 14.31818MHz 15pF SMD
7110	9340 425 20115	BC847BS
7201	9322 210 59668	THC63LVDF84B
7403	9322 201 03668	THC63LVDM83R
7501	9322 170 14668	LF15ABDT
7504	9322 190 77685	SI2307DS
7505	4822 130 11155	PDTC114ET

11. Revision List

Manual xxxx xxx xxxx.0
- First release.

Manual xxxx xxx xxxx.1
The manual is updated with information for models with Pixel Plus. This information is only applicable for xxPF9956 models.
- Chapter: Mechanical Instructions, added Pixel Plus Panel removal instructios.
- Chapter: Service Modes, Error Codes, and Fault Finding, some layout issues fixed.
- Chapter: Block Diagrams, Testpoint Overvies, and Waveforms: Pixel Plus Panel added.
- Chapter: Circuit Diagrams and PWB Layouts: Pixel Plus Panel added.
- Chapter: Circuit Descriptions, Abbreviations List, and IC Data Sheets: Pixel Plus Panel descriptions added.
- Chapter: Spare Parts list, Pixel Plus Panel added.